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ISLAND CARIB II: WORD-CLASSES, AFFIXES, NOUNS, AND VERBS[1]

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DOMINICA, BRITISH WEST INDIES

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1. Island Carib is a mildly polysynthetic language of the type which expresses pronominal reference to subject, goal, and possessor in bound forms. It makes considerable use of affixation for purposes of derivation and, to a lesser extent, of inflexion. Suffixes are at least five (and possibly ten) times more numerous than prefixes; but their relative importance to the language may be gauged more accurately by the following figures. Fifty-seven per cent of all words in a thousand-word sample of running conversation contain affixes; and of these affixed forms about one third bear both prefixes and suffixes, while words containing prefixes alone outnumber those containing only suffixes by three to one; almost 48% of all words in this sample contain prefixes, only 29% contain suffixes. Word synthesis is mainly agglutinative in technique; but the fundamental syntactic relations, with the important exception of pronominal reference and cross-reference, are for the most part expressed in 'unmixed' form. Many (probably most) complex words have roots which also occur as free forms. Some roots and most minor morphemes (affixes and superfixes) have two or more variants whose occurrence is determined by particular phonemic or morphemic environments. In order to avoid, as much as possible, interrupting the description of morphemic structure, alternation will be discussed after and apart from it. Compounds are infrequent and apparently confined, with a very few doubtful exceptions, to the noun-plus-noun (or adjective-plus-adjective) type. Internal change, reduplication, and suppletion occur only sporadically, and seem to be vestigial.

Some formations are complicated; and it will be helpful to settle upon a convenient terminology in which they may be described.

An affix which—alone or jointly with another—changes the class of an underlying form to which it is added will be called CONVERSIONAL. Such an affix (like the aspect markers, 201–205, which are at the same time verbalizing) may or may not partake of inflexion; but it is characteristic that its presence makes possible the occurrence of two affixes belonging to the same position class, or even the recurrence of a particular affix twice over, within one and the same word.

Affixes which do not change the class of an underlying form will be called DERIVATIONAL when the complex words they go to form are

[1] This is the second of a series of papers in which I try to describe some of the main structural features of that dialect of Island Carib now spoken by the Black Caribs of British Honduras—particularly by the inhabitants of the village of Hopkins in 1947–48. For the first paper, 'Phonemes of the Hopkins (British Honduras) dialect of Island Carib', see IJAL 21. 233–241 (1955) which may be regarded as Island Carib I: Phonemes.

Much of the research that has led to the publication of these papers was made possible for me through the award of a fellowship by the John Simon Guggenheim Memorial Foundation in 1952–53, for which I hereby express my thanks.

grammatically replaceable in all environments by primary words, INFLEXIONAL when this is not the case; no sequence of more than two such affixes has been found, but may conceivably occur.

That more central part of a word to which an inflexional affix (morpheme or morpheme cluster) is added will be called its THEME; that to which a derivational affix is added will be called its STEM; that to which a conversional affix or affix complex is added will be called its BASE; while by ROOT will be meant that part of a word which remains after all separable affixial elements have been removed, and which usually is associated with a general lexical meaning.

A couple of examples will clarify this usage.

There is a word magįdahadíbaų *she will be unable (or not disposed) to bear fruit*, whose final morph, -ų *she*, is grammatically replaceable by -i *he*, -ią *they*, -di-bu *thou*, -d(i)-ho *ye*, -di-na *I*, or -d(i)-ua *we*. Since the morpheme -dI never occurs before third-person pronominal suffixes (where it is replaced in some constructions by -lI ∼ -r), it is considered as here forming a part of the morpheme clusters -dina, -dibu, etc.; and magįdahadiba- is taken to be the theme of verbs so formed. This (imperfective) theme is co-ordinate with others such as magįdahadiha- (perfective, as in magídahadíharu *she has become unable to bear fruit*), magįdahadigi- (durative, as in magídahadígiru *she is still unable etc.*), magįdahaditI- (aorist, as in magídahadítu *she is unable etc.*), which have in common a part that I call their base, since it coincides with the particle magídahadi *unable (or not disposed) to bear fruit*. An immediate constituent of this last word (with which compare gagídahadi *able or disposed to bear fruit*) is the verb agídaha (which I call the base of particles formed from it), tensive form of agída *to bear fruit* (which I call the stem of other verbs derived from it), itself converted from the base gį *having fruit*, an attributive denominal particle formed by prefixing attributive gA- (21) to the base -į. The latter bound form is also the stem of the absolute noun hį *fruit, offspring, etc.*, and the theme of such a possessed noun as tį *her fruit (which she bears)*; while to it, as root, may be said to belong (inter alia) all the above mentioned words, bases, stems, and themes. In this example, the intervention of the verbalizing prefix a- makes possible the occurrence of two prefixes, attributive gA- and privative mA-, belonging to the same position class within one word (magídahadi), or the recurrence of one of them, gA-, within another (gagídahadi).

My second example is taken from the sentence: narúfudubái kátanaiądina lą *I'll show who I am*, but more literally, *it'll-be-my-showing I-am-who-I-am its-being*. The first two words are verbs, the last an auxiliary verbal noun. The sentence follows the basic word-order, predicate (first word, with incorporated pronominal reference) preceding the subject group. Removal of the terminal affixes, n- *1st sg.*, -i *3rd sg. masc.*, -di-na *1st sg.*, l- *3rd sg. masc.*, exposes the themes, imperfective -arufuduba-, progressive katanaią-, auxiliary verbal noun -ą-. Removal of the (verbalizing) aspect markers leaves participial -arufudu, and a word classed as locator, kátana *who or what am I*. The verb arúfuda *to show* (a derived primary word) underlies the first of these forms, while the second contains the locator theme, kata-, which (exceptionally for this class) has as base the free particle ka *what or who*. The verb arúfuda may be analysed into a bound base and verbalizing prefix and suffix, a- and -da. In this example, the intervention of the verbalizing aspect-marker -ią makes possible the recurrence of the eminently inflexional suffix -na *1st. person sg.* twice within the same word.

2. Since, in this language, syntactic function and form-class do not always coincide, while word-order may be varied for purposes of emphasis or style, word-classes—like words in general—must be defined by means of morphological criteria.

Thus, VERBS (V) can be defined as a class

of derived primary or secondary words, which, apart from whatever person-marker affixes they may or may not contain terminally, either end with an aspect marker, or begin with a verbalizing prefix and end with the a-form of one of the verbal and verbalizing suffixes (v. under **3.2** below).

Auxiliary verbs are words that consist, apart from person-marker affixes, of one of a small number of aspectual stems and themes.

Another closed class, the LOCATORS (L), consists of a small number of stems and themes followed by one or at most two of certain suffixes; with one exception, they are all primary words. Like the person-marker affixes employed with verbs, nouns, and—in the case of suffixes only—some locators, pronominal locators (those with a personal-pronominal root) distinguish three persons, two numbers (plural number being employed only with animate or reputedly animate referents), and, in the third person singular, masculine and feminine genders.

NOUNS (N) may be simple, derived, or compound words; and are either prefixable or unprefixable.

Prefixable nouns (which constitute the vast majority of words belonging to this class) can be defined as words, themes, or stems which, while not verbs as defined above, contain or combine with the person-marker prefixes 1–7.

Unprefixable nouns (such as aréba *cassava-bread*, barána *sea*, guríara *dugout canoe*, múna ~ múona *house*, uátu *fire*) can be defined as words which, while neither verbs nor locators, combine with a suffix having an N or an NL distribution, or which themselves contain a nominalizing suffix (see affix inventory).

The person-marker prefixes inflect nouns for pronominal possession; the person-marker suffixes inflect verbal nouns for pronominal goal; a nominal pluralizer, homonymous with the suffixed marker of third person plural, may be added to some nouns denoting animate beings.

The nominal-absolute markers, h- (31) and -o ~ -i ~ -u (359), occur only in absolute nouns, and are always terminal. The nominal subordinator -te (324) combines only with stems of the noun class.

Words which cannot be inflected, and which, apart from conversion, take only such derivational affixes as are also found with words belonging to one or more of the above-mentioned classes are grouped together in a major form-class of PARTICLES (P).

By means of the conversional or derivational affixes, verbs may be derived from nouns, locators, particles, or other verbs; nouns may be derived from verbs, particles, or other nouns; and particles may be derived from verbs, nouns, or other particles. Only one locator theme has an underlying free form, the particle ka *what or who*.

It will be convenient sometimes to distinguish as ADJECTIVES (A) a subclass of particles whose main function is that of predicate complement (although a few may also precede a noun as modifiers). Adjectives, like nouns, may be simple, derived, or compound words; they commonly combine with derivational affixes such as those denoting passive, stative, causative, etc.; and yield—more commonly than is the case with other particles—nouns and verbs by combination with conversional affixes, as in the case of uíe *dirty*, iuíei *dirt*, auíeda *to dirty*.

2.1. Affix inventory.

Inflexional prefixes, O. VN

1. n-
2. b-
3. l-
4. t-
5. uA-
6. h-
7. hA-
8. kA-

Inflexional suffixes

100. VNL
101. -na
102. -bu
103. -i
104. -u ~ -ų
105. -ua

106. -ho
107/108. -ią ∼ -iụ ∼ -nụ
110. V
111. -dI
112. -lI ∼ -r
Conversional prefixes
10. Vg. with 11, and Ng and N with 12
11. A-
12. I-
20. Pg. with 21, and Pg and VP with 22
21. gA- ∼ hA-
22. mA-
Conversional suffixes
220. Vg and V
201. -ba
202. -ią
203. -HA
204. -gi ∼ -ge
205. -tI
210. Ng and N
211. -NE
212. -lE
213. -rE
214. -DI
215. -gole
216. -se
220. Pg with 221 and 223, and Pg and NP with 222
221. -U
222. -(i)na
223. -dua
230a. and 230b. Vg
231a. -ra; 231b. -rua
232a. -ha; 232b. -hua
233a. -da; 233b. -dua
234a. -ca; 234b. -cua
Etc. to 239a. and 239b.
Derivational prefix 30. N
31. h-
Derivational suffixes
300. V
301. -ha
310. VNP with 311 (and N with 211, 212, and 213 as listed above)
311. -ua
320. VNP with 321, and NP with 322 and 323, and N for 324, 325, 326, and 327
321. -gua
322. -gu
323. -habu
324. -te
325. -da
326. -ha
327. -bu
330. VP with 331, NP with 332, N with 333, 334
331. -goda
332. -(u)ga
333. -rugu
334. -uagu
340. NL with 341 and 342, and NP with 344 (and with 222 as listed above)
341. -ụ
342. -gię ∼ geę
344. -dVna
350. N with 359, and VNLP with the others
351. -ia
352. -meme
353. -rao
354. -rog(o)
355. -buri
356. -gubai
357. -tima
358. -giua
359. -o ∼ -i ∼ -u
400 and 410. L
401. -Ha
402. -ra
403. -gVta
404. -gVra
405. -te
406. -g(u)ia
411. -į

3. In what follows, inflexion, conversion, and derivation will be discussed so far as possible in that order. Prefixes are described before suffixes as a matter of convenience, although all mention of the latter cannot be deferred until they themselves are dealt with.

3.1. Seven person-marker prefixes (n- *1st sg.*, b- *2nd sg.*, l- *3rd sg. masc.*, t- *3rd sg. fem.*, uA- *1st pl.*, h- *2nd pl.*, hA- *3rd pl.*) distinguish three persons, singular and plural numbers, and—in the third person singular only—masculine and feminine genders. They inflect

verb themes for pronominal subject, and noun themes for pronominal possessor. An eighth member of this class (O), kA- *whose*, appears to be an innovation; its use being confined to a few noun themes and to younger speakers (see below).

The verbalizing prefix A- (11), in conjunction with a verbalizing suffix (class 230), converts nouns, particles, and bound bases into verbs. The nominalizing and nominal prefix I- (12), with or without the participation of a nominalizing and nominal suffix (class 210), converts particles into nouns. Alone or jointly with a subordinating suffix (324, 211–213), it is also employed to derive possessed nouns and noun themes from absolute nouns.

The adjectivalizing prefixes, attributive gA- ~ hA- (21) and privative mA- (22), convert nouns and verbal nouns into adjectives; the base to which they are added coinciding with the (possessed) theme, or, in the case of habilitative constructions, being formed by suffixing -DI (214) to an infinitive verb form (see what is said about this suffix under **3.2** below). The privative (but not the attributive) prefix (22) is derivational in two of its functions, since it may be added to some particles analogously to English *un-*, or to any infinitive verb to form the prohibitive complement of the conjunctive auxiliary verb.

An absolute-marker prefix, h- (31), is employed with some nominal stems, often (but not always) in conjunction with an absolute-marker suffix (359 or another).

In the majority of cases, stem and theme coincide; so that without conversion only one (derivational or inflexional) prefix occurs; thus, from auíeda *to dirty*, we derive mauíeda bá *don't dirty*, or inflect for person as in tauíeda *she dirtie(s)* (indefinite as to tense); while from the bound form -į we get absolute hį *fruit* (with 31) or a possessed noun such as tį *her fruit* (with 4). However, a comparison, one with another, of such forms as ká dóbu *what stone*, ká idóburi *whose stone*, lidóburi *his stone*, must convince us that the last of these bears both a derivational prefix, i-, and an inflexional prefix, l-. It may be, however, that the use of I- (12) without a preceding person marker to express indefinite or syntactically marked possession is beginning to be obsolescent; for younger speakers sometimes employ a prefixial form of the particle ka *what or who*, kA- (8), with the same function, as in káuori *whose matchet?* (analogous to náuori *my matchet*, from the bound nominal theme -áuori), káų dábula lírabai *whose table is that?* (analogous to uáų ~ uáuni *to or for us*, a morphological noun which also has a bound theme).

When conversion is introduced, a sequence of three prefixes may occur; the innermost an adjectivalizer (20), then a verbalizer or a nominalizer (10), and outermost one of the person-marker prefixes, or, alternatively, an adjectivalizer again (this latter construction has been illustrated under 1 above). Examples: 4 + 11 + 21 + ári *tooth or teeth* + -da = tagárida *she gives pain* (*or injury*), 4 + 12 + 21 + ári ± -gu = tigári(gu) *her pain*, 4 + 11 + 22 + -ísię *likableness* + -da = tamísięda *she dislikes*, 4 + 12 + 22 + ísię ± -gu = timísię(gu) *her dislikableness*. The addition or omission of the collective suffix -gu is not just stylistic, since without it the possessor is particularized as in tigári nanígi *her-pain my-heart—the pain in my heart*, whereas with it, as in tigárigu *her pain* (*wherever localized*), t- *her* (4) refers to the woman or female being as a whole. Underlying forms are: agárida *to inflict pain or injury* and amísięda *to dislike* (verbs); igári(gu) *pain* and imísię(gu) *dislikableness* (nouns); and gári *painful, -toothed*, as also, in some contexts, *having teeth*, and mísię *without likableness*.

The verb amísięda is rarely used, however. The stem -ísię (not heard in absolute use) is hardly translatable, denoting as it does the quality which incites love or liking, and not that affection itself, to express which the suffix -habu (323) must be added, as in tísię-habu *her affection*, hísię-habu *affectionate*. But the usual way of expressing likings

and dislikes is to convert -ísię into an attributive or privative adjective, hísię or mísię, which is then verbalized with pronominal reference to what or whomever arouses affection or its contrary, and to follow this verb by a preposition-like word with a person-marker prefix (morphologically a noun) in reference to the one(s) who like(s) or dislike(s). So, 21 + -ísię + tI (205) + -u (104) = hísiętu *she has likableness* + nų́ *for me* means *I like (or love) her*; and 22 + -ísię + -tI + -i (103) = mísięti *he's without likableness* + tų́ *for her* means *she dislikes him*. Or else it is the possessed noun that is verbalized, as in ligía tísiębai lų́ *it's-this-masc. which-masc.-be-her-likableness for-him —that's what he likes about her*.

3.2. It has been possible to isolate by commutation something over five dozen suffixes occurring in my textual and elicited data; but some of them appear to be so restricted as to the environments in which they occur that it is probably safe to reckon them unproductive. The majority of suffixes must be classed as derivational.

To the inflexional layer belong seven person-marker suffixes corresponding to the person-marker prefixes, -na, -bu, -i, -u ∼ -ų, -ua, -ho, -ią ∼ -ių ∼ -nų, (101–107); two morphemes that may be called relators, -dI (111) and -lI ∼ -r (112); and, if it is to be regarded as distinct from 107, with which it is homophonous, the nominal pluralizer (108). The person-marker suffixes inflect verbs for pronominal subject or object, verbal nouns for pronominal object, and also occur with certain locators. The relators are morphemes that occur only but not always before person-marker suffixes in verb forms. From such a paradigm as (perfective): colóha-dina, -dibu, -li, -ru, -d(i)ua, -d(i)ho, -ią, *I, thou, he, she, we, ye, they—have come*, it might be supposed that -dI (111) and -lI ∼ -r (112) were variants of the same morpheme, which also included a zero alternant. That this is not so, however, appears from a comparison of hagía agágudubáią *it's-they who-plural-woke-up* with hagía agágudubálią *it's they who awakened them* (cf. tugúia agágudubálią *it's she who awakened them*). In the former construction only a third-person marker of class 100 can occur; and this refers and attaches the rest of the verb to a previously expressed antecedent with which it agrees in gender or plural number. In the latter construction, -lI (∼ -r before -u of 104) relates any following person-marker suffix to the rest of the verb as goal. The subordinating function itself is marked syntactically, since the same morphological construction (which I call imperfective) has future-tense function when it occurs in the basic word-order, predicate-subject-goal; ladógobaų túmari ábą iamádi uáų *he'll-make-fem.-it her-husband a basket for-us—her husband'll make us a basket*, but ka sa ladógobaų *what is-it that-fem.-be-his-making—what did he make?*

With those nouns that can take it, the pluralizer, like the third-person plural pronominal suffix, varies according to the theme (or stem?—see 4) to which it is attached. Examples: iráho *child*, iráhoią *children*; nidúhe *my kinsman or kinswoman*, nidúhęiu *my kinsfolk*; nítu *my sister*, nítunų *my sisters*; eiéri (women's speech), uogóri (men's speech) *man*, eiérių, uogórią *men*; hįáru (w. s) uóri (m. s.) *woman*, hįár(u)ių, uorią *women*; níbiri *my younger brother*, nibírię *my younger brothers* (cf. collective: níbirigu *my younger siblings*); muládu *member of the Spanish-speaking community* (Sp. mulato), muládunų (plural). Not all nouns denoting animate beings have a plural form; and in such a context as: uáiritių eiérių hára *big-are-they men those—those men are big* the plural noun eiérių can be replaced by a collective such as íbirigu, or by a simple word such as mútu *person or people*, áųli *dog or dogs*, without incurring any other change. Moreover, pronominal reference to a collective noun is singular when it denotes objects, as in numégegu líra *'that-masc.' belongings of mine*, plural when it denotes beings, as in numádagu hára *those friends of mine*.

The aspect markers, imperfective -ba, progressive -ią, perfective -HA, durative

-gi ∼ -ge, and aorist -tI, (201–205), are clearly verbalizing, as in áudobubai *he/it will be in town*, from áudobu *in town*, áudo *town*, both nouns; buídubai *he/it will be good* from buídu *good*, a particle; iáhaųbadíbu *thou'lt be (coming) hither*, from iáhaų *hither*, a locator; tíbiri búgucuruiądina *I'm thy mother's younger brother*, from búgucuru *thy mother*, a noun; gádoroiąi asíedu *it is four plates*, from gádoro *four*, a particle; kátanaiądina *I am who I am*, from kátana *who or what am I*, a locator; lúmariháru *she has become his wife*, and luáguhali tigácorogo uíe *it has got dirty up to her knees*, from lúmari *his wife* and luágu *upon it/him*, both morphological nouns; márihali *he has become toothless*, from mári *toothless*, a denominal adjective; iníhaįhali *he has been there*, from iníhaį *he's there*, a locator; lúmarigíru *she's still his wife*, from lúmari *his wife*; sógili *it's still hot*, from só *hot*, a particle; áudobugiẹ́ti *he/it is from town*, from áudobugíę *from town*, a noun; mítaratu *she is not thus*, from mítara *not thus*, ítara *thus*, both particles. Therefore, when we find such verbs as larúmugubá *he'll sleep*, larúmuguįą *he's sleeping*, contrasting in their antepenultimate phonemes with the final of arúmuga *to sleep*, larúmuga *he sleep(s)* (indefinite as to tense), and compare these words with the nouns arúmuguni *sleep*, larúmugų *his sleep*, it appears that the base to which the imperfective and progressive aspect markers are added also belongs to the class of nouns or to that of particles, and not to the verb-class.

Before the markers of perfective and of durative aspects, however, this change does not occur; while before the aorist marker, -tI, and in some verbal nouns, both forms may be found. So, from the infinitive verb adóga *to do or to make* I have the aorist verbs: adógati (ábą híbise) *he made (a sifter)*, adógoti (uogóri léa híbise) *(this man) he is maker (of sifters)*,—both functioning as predicates, but the latter an agentive; and two verbal nouns: adógani *make (thing made)*, adógoni *making (act or process)*. This suggests that before -ti (-tI + -i) of the first pair may come either one of two segments, which prove, by commutation, to belong to different morphemes; and that these same segments recur in the second pair, where they precede a morph, -ni, belonging to a nominalizer. Unfortunately, absolute verbal nouns are extremely rare in textual (as opposed to elicited) material; while this -ni is replaced, in the possessed forms of those which have no pronominal goal (including, of course, all those of the type which denotes the object of an act or process), by nasalization of the preceding vowel or, more often, by zero; so that the second word in uríbati badóga uáų *it-is-bad what-thou-didst to-or-for-us* is usually homophonous with the first (a verb) in badóga me ábą iamádi uáų *thou'lt make a basket for us*, although word-order marks badóga as the subject of the first sentence, but as predicate of the second. Similarly, from the verb áiga *to eat*, I have: ká sá náti láiga (∼ láigą) *what is-it my-brother his-food —what is he, my brother, to eat?* contrasting with ká sá náti láigi (∼ láigį) *what is-it my-brother his-meal (eating)—what did he, my brother, eat?* It is true that a linguistically more sophisticated informant will explain láigį (féį) *his eating (of bread)* as a possessed form of áigini *meal (eating)*, láigą (féį) *his food (of bread)*—i.e., *his bread* as distinguished by vowel-nasalization from láiga (féį) *he eat(s) (bread)*. Nevertheless, in spontaneous speech, áigini is often used for *food*, while nasalization of word-final vowel in such possessed forms was rarely heard, however close one might get to the speaker. Therefore—and in view of analogous difference between some possessed nouns and their absolute forms, as in nanága *my back*, but anágani *back*, nufúie *my wrist*, but fúieni *wrist* (Fr. poignet)—it seems doubtful whether the theoretical nasalization of the final vowel in such a word as badóga, when it functions as the subject of a sentence, justifies us in calling it a morphological noun.

The above facts have been discussed in some detail because they pose a problem

which I feel unable to solve. If we accept the more sophisticated informants' elicited distinctions, we have (1) a verb-form in -a: áfara *to beat*, táfara(i) *she beat (him)*; and (2) a bound participial form in u ~ o ~ i; táfarubái *she'll beat him*, áfarutu *she who beats*; and from each of these a verbal noun denoting respectively the goal of the action (táfarą *that which or whom she beat*), and the action itself (táfarų *her beating*, táfaruni *her beating him*). In this case we would say that there is a nominalizer which has at least three variants, -ni, -n, and V̨ (nasalization of the vowel belonging to the preceding morpheme). If on the other hand we base our analysis on textual material (and, it may be added, on the opinion of less sophisticated informants), there is then no phonemic difference between the base of táfarubái, táfaru-, and the verbal noun táfaru *her beating*, which, however, becomes táfaruni on the addition of the person-marker suffix, -i *him*, which here functions as goal. In this case we would say that all a-forms (unless subsequently converted) are verbs, and all u-forms (unless subsequently converted) nouns; and that final u ~ o ~ i belongs to the same nominalizing morpheme as -ni, -n, and V̨. This morpheme we may label, without prejudice to its constituent members, -NE (211); for it is quite possible that both types of structure are present for different speakers. The participial morpheme (for such types of speech as recognize the distinction) we will call -U (221).

Other nominalizing suffixes are: -li ~ -le, -ri ~ -re, -DI, and -gole, (212–215). Productively at least, the first two occur only with particle bases, and the last two only with verb bases. In this they differ from -NE (211) which, as we have seen, may be added to a verbal base, and which also is employed to convert adjectival particles into nouns as in uríbani *badness*, from uríba *bad*, and ubuíduni *goodness*, from buídu *good*. The suffix -li ~ -le is seen in gumúlali *smoke*, from gumúla *smoky*, on which is also based the verb agúmulaha *to smoke*. Exceptionally, (t)ubáli (*her*) *saying/maxim* has a verbal base, (t)uba (*she*) *will say*. The suffix -ri ~ -re usually has a similar function, as in gaiúnari *ancestral-cult house*, from gaiúna *having a base or stem* (whose nominal form is seen in níuna *my ancestor*, or *my stem, base*, etc.), ubuíduri *favorite* (N)—with which compare ubuíduni above. This suffix may also be derivational, however, as in númari *my consort*, from núma *with me* (which is morphologically a noun). The nominalizing function of -DI (214, which is taken to be distinct from the basically homophonous relator, 111) can only be inferred from the fact that one (21) of the two members of class 20 (adjectivalizing), whose presence is a necessary condition for its occurrence, is found elsewhere only with a noun or a verbal noun as base. Habilitative adjectives such as gáiguadi *eatable* and máiguadi *uneatable*, from passive áigua *to be eaten* (with underlying áiga *to eat*), are therefore taken to be denominal in the same way as are gasábadų *provided with shoes* and masábadų *shoeless*, from sabádu *shoes* (Sp. zapato), and although no such form as *áiguadi *eatableness* was heard. The last of these nominalizers, -gole, appears to be productive only in converting verb stems into instrumental nouns, as in abuídagole *broom* from abuída-, stem (not heard as a free form) of tensive abuídaha *to sweep*. It is rarely (if ever) added to a verb containing a secondary (derivational) suffix, even when such are habitually contained in the verb; thus, áunaha *to send*, whose non-tensive form, áuna, is rarely employed (and then rather with the meaning *to heed*), forms an instrumental noun, áunagolei *messenger*. Exceptionally, the instrumental noun baránagole *seafarer, white man from overseas*, has a noun as stem, barána *sea*.

The suffix -se (216) must be considered as nominalizing for the same reasons as apply to 214. Like the latter, it has been heard only in forms containing the attributive or privative prefix (21 or 22), as in garíhaseti *it/he is worth seeing*, whose underlying form,

though unattested as such, is garíhase *worth seeing*, from aríha *to see or to look at*. (This suffix appears to be related to hésebe *agreeable, pleasant*, from the noun ísebei *agreeableness or pleasantness*, and to hísię *likable*, from -ísię *likeableness*).

There is a suffix, -(i)na (222, basal), which is almost certainly related to the noun iúnao, -íuna *base, stem, ancestor*. Added to a noun or to a particle, it is purely derivational (see below), but it converts an infinitive verb into a gerund-like particle. In the latter function, it may occur after the tensive, stative, or some other derivational suffix, as in aiáhuahaina *weeping*, from aiáhuaha, tensive of aiáhua *to weep*; arúfudahaina *in such a manner as to show*, from arúfudaha, tensive of arúfuda *to show*, (arúhuda is the more conservative form of the same word); áufuṭaguáina *hurrying or hurriedly*, from áufuṭagua, stative or reflexive of áufuṭa *to hurry*; áunabaina *answering*, from áunaba *to answer*.

Forms such as eiériduáti *he's (too) mannish*, hįáruduátu *she's (too) womanish* are employed, either disparagingly or jokingly, of a 'forward' boy or girl. Besides underlying eiéri *man* or hįáru *woman*, aorist -tI (205) and a person-marker suffix, they contain a suffix, -dua (223), whose meaning appears to be assimilative, and which is therefore most probably adjectivalizing. (Cf. Dominican Creole: tro nom *too mannish*, tro fam *too womanish*, employed analogously, and in which the words nom and fam function as adjectives, contrasting with their nominal function in trop nom *too many men*, trop fam *too many women*.)

A few suffixes whose functions are mainly derivational appear to be conversional when they are added to verb bases. These will be discussed along with other derivational suffixes below.

Productive verbalizing suffixes, in order of their frequency, are: -ra, -ha, -da, -ca, -a, forming active verbs; and -rua, -hua, -dua, -cua, -ua, forming middle-voice verbs; the a-phoneme of all but one of these forms regularly being lost whenever either the passive or the participial suffix is added to one of them; (to be applicable to varieties of speech in which 211 and 221 have been merged, this statement must be modified accordingly). The exception is -ha, which, whenever the verb formed by its means is a secondary word, as is usually the case, retains its vowel in all positions; and for this reason I believe it to be more correct to speak of the verbalizers -ra ~ -r, -rua ~ -ru, etc., than of a suffix -r, etc., followed by a verbalizing -a or -ua. Examples of the active suffixes' employment in forming verbs from borrowed bases are: etégira *to thank*, whose base, tégi *thanks*, comes from Eng. thank (th)ee; asúpaha *to massage*, whose base (not heard as a free form) comes from Sp. sobar; arísida *to get rich*, whose base, rísi *rich*, comes from Fr. riche; egelęca *to lock*, whose base gelę *key*, comes from Fr. clef; and aiúsa *to make use of*, whose bound base comes from Eng. use.

That these verbalizers have differential meanings may be gathered from the existence of such pairs as: agą́iera *to gain (earn or win)*, but agą́ieha *to buy*, whose base is borrowed from Fr. gagné; arą́sera *to arrange (repair)*, but arą́seha *to get ready*, whose base is borrowed from Fr. arrangé; asígenera *to doubt*, but asígeneha *to argue*, whose base is borrowed from Fr. chicané; ásora *to roast or bake*, but ásoha *to sting*, the meanings of whose base, so, are covered by *ardent*; and ámuruda *to tighten*, but ámuruha *to squeeze*, whose base is muru *tight*.

Middle-voice verbs are not numerous in my data. With one exception, all of them are based on native—for the most part bound—forms; and it seems possible that this category may have first arisen through semantic specialization and subsequent morpheme petrification of erstwhile stative-reflex or passive verbs. Examples: akúlirua *to wiggle the buttocks* (also as a euphemism for *copulate*), with base borrowed from Sp. colear; abíruaha (heard only with tensive suffix -ha) *to have fever*; aiáhua *to weep*;

agágudua *to awaken*, whose base, gágu *-eyed or having eyes*, is formed by prefixing gA- (21) to the noun águ *eye(s)*; ébecua *to criticize hostilely*; ágaua *to bathe or wash self*.

Other verbalizing suffixes, apparently no longer productive since the vast majority of verbs containing them consists of primary words, are: -ba, as in agába *to hear*; -ga, as in arúmuga *to sleep*; -ma, as in arárama *to stand*; -na, as in áfuduna *to pierce*, with free base fudu *pierced or piercing*; and middle-voice counterparts such as -gua in áigua *to fall*—a primary word contrasting with passive áigua *to be eaten*, which has active áiga *to eat* as underlying form. However, a comparison of such primary verb formations one with another as erę́ga (arįaga, in ceremonial speech) *to say or to speak*, arįaha *to tell on or about*, arįagua *to whisper*, shows that even primary suffixes retain some vitality. Active-voice verbalizers are labelled, in the order given above, 231a–239a; and their middle-voice counterparts, 231b–239b.

Turning now to such suffixes as do not usually change the class of an underlying form to which they are added, it will be convenient to begin with four that have a distribution with verbs and with other classes as shown in parentheses. These are: tensive -ha (301, V), passive -ua (311, VPN), stative-reflexive -gua (321, VPN), and causative -goda (331, VP). In their occurrence with verbs, the following combinations have been found: tensive + passive, as in ábuna *to plant or to bury* + -ha (301) + -ua (311) = ábunaháua *to be buried*; passive + stative-reflexive, as in ábuna + -ua (311) + -gua (321) = ábunuagua *to be planted*; stative-reflexive + causative, as in ábuna + -gua (321) + -goda (331) = ábunaguágoda *to cause to plant*; and tensive + causative, as in ábuna + -ha (301) + -goda (331) = ábunahágoda *to cause to bury*. Passive appears to be incompatible with causative except by conversion into a verbal noun such as l- (3) + ábuna + -gua (321) + -goda (331) + -U (221) + -NE (211) + -ua (311) = lábunaguágodonúa *his being caused to plant*. On the other hand, the contrast between tensive verbs such as álogodáha *to ask (a question)*, amúriaha *to request (something)* and stative álogodagúa *to interrogate (a person)*, amúriagua *to ask (a person for something)*, leads one to suppose that tensive -ha and stative-reflexive -gua must be semantically incompatible; and this supposition is borne out in all elicited paradigmatic data obtained. However, a few apparent exceptions to this restriction on permitted sequences have been found in recorded texts. Thus, láunagodúa luágu *he was sent for* shows a passive form of áunagoda *to send (for)*; but the fact that the latter verb is intransitive, together with the obvious specialization of its meaning (with which compare áuna *to heed*, áunaha *to send*, áunaba *to answer*—all transitive, and áunagolei *messenger*), probably justify us in concluding that it no longer contains the causative suffix as a functional grammatical unit, (as álogoda and its derivatives certainly do not). Less explainable is the occurrence (in a ceremonial song) of the forms taríraguaháina *her running before the wind* and tadáiaguaháina *her veering or luffing*, for these appear to contain the sequence—unattested elsewhere, and contrary to the relative order as indicated—stative -gua + tensive -ha, followed by conversional -(i)na (222, basal). The second of these forms, which are morphological nouns on account of the presence of both basal suffix and person-marker prefix, however, is based on a middlevoice and not a stative verb, adáiagua *to luff or veer (into the wind)*; whose meaning is specialized, since its own base, daia *peeled*, forms adáiaha *to peel*. This explanation does not hold for the first form, since aríraha *to sail* (as in tarírahaią uagúne *our boat is sailing*—lit. *she-is-sailing our-boat*) and aríragua *to glide or slide*, with underlying aríra *to glide or to sail*, are attested otherwise.

The passive, stative, and causative suffixes occur with particles in the same relative order as is usual with verbs; so, gorá *bound*

+ -ua (311) + -gua (321) = goráuagua *in a state of having been bound*, and buí *full* + -gua (321) + -goda (331) = buíguagoda *filled*, huáli *light (weight)* + -gua (321) + -goda (331) = huáliguagoda *relieved*; but passive is not found together with causative. As in the case of verbs, there are some apparent exceptions to this relative morpheme order; so, derégodagúa *taken in (mentally digested)*, which certainly shows semantic specialization as compared with derégoda *hardened or stiffened* and derégua *compressed*, with underlying deré *hard or stiff*.

With nouns, the passive occurs in those which are derived from verbs, as in lígiragodonúa *his being let go of*, which consists of l- *his* (3) + ígira *to leave* + -goda (331) + -U (221) + -NE (211) + -ua (311); while -gua (321) usually has a reflexive function, as in líligua *his own tail* from líli *his tail*, or in lúgua ~ lunígua (ceremonial) *for himself* from lú *for him*. However, -gua may also occur without reflexive function in nouns, or with it in verbs; as in iránaguao *sibling in between (an elder and a younger)*, from iránao *waist* (and earlier *middle*, in which meaning it is now superseded by borrowed amídani, -amídą, from Fr. mitan and in arámodagua *to hide oneself*, from arámoda *to hide*. Passive and stato-reflexive suffixes have not been found to combine in this word class; unless, indeed, one were to interpret anomalous (t)ubáruagaų *to (her) front* as resulting from tubára *before her* + -ua (311) + -gua (321) + -ų *toward* (v. below), instead of from an irregular combination of the last two suffixes only, as seems more likely.

The above considerations oblige us to posit, in the case of verbs, four derivational position-classes occupied, in that order, by tensive -ha, passive -ua, stato-reflexive -gua, and causative -goda; although no sequence containing more than two of them has been found, and some irregularity appears to exist.

Some—but by no means all—nouns take subordinating suffixes in their possessed forms, and in the bases from which they are converted to words of another class by means of a prefix of class 20. These occur in my data as: -ni ~ -ne ~ -ę ~ V̨ (whose last and commonest variant denotes nasalization of the preceding, stem-final vowel, and is therefore a superfix rather than a suffix), -li ~ -le, -ri ~ -re, and -te. The second and third are uncommon, the former extremely so. Nevertheless, the similarity of the first three to the nominalizers 211–213, and their re-association in this other function, may warrant the identification of the two sets. The fourth (-te, 324), although possibly related historically to 214, differs from it considerably, and occurs in one instance, moreover, after 213, where both suffixes have subordinating function. Examples: nibírani *my sail* from bíra *sail* (Sp. vela), gerégigię *provided with a hearth* from régigi *hearth*, masábadų *shoeless* from sabádu *shoes* (Sp. zapato), bumáragali *thy maraka* from marága *maraka* (shaman's big rattle, as distinguished from his smaller rattles which are called sísira), némeri *my road* from óma *road*, gebéneri *having doors* from béna *door(s)*, madúnari *waterless* from dúna *water*, ka idóburi *whose stone* from ka dóbu *what sone*, nesúbarate *my matchet* from isúbara *matchet* (Sp. espada), maiúrite *without tobacco* from iúri *tobacco*, ká isábute *whose soap* from ká sábų *what soap* (Fr. savon). The 'e-forms' were heard mainly in ceremonial songs; but although they may be stylistically rare or archaic, they are morphophonemically significant, as will be seen when alternation is discussed. Examples: uábulugúne *the tops of our heads* from ábulugu *crown (of the head)*, uáunine *to or for us*, colloquially uáų, and without any free absolute form, uabúiere *our shaman* from búie *shaman*. The subordinating suffixes are maintained in compounds, as in nibíranebu *my mast* from bírebu *mast* (bíra *sail* + ébu *support*), nebéneriébu *my doorstep* from bénebu *door-step* (béna *door* + ébu *support*); and also before other suffixes, as in tidábuiabárirugú *interior of her ancestor-cult*

house from dabúiabarugu *interior of ancestor-cult house*, (whose stem, dabúiaba *ancestor-cult house*, is synonymous with gaiúnari). In their subordinating function (as distinct from that as nominalizers), 212–213 are certainly no longer productive; and speakers vary considerably as to the stems with which they are employed. The former (-li ~ -le) has what appears to be a feminine counterpart, -ru, as in núgucu(ru) *my mother*, but núguci(li) *my father*, words in which these suffixes are employed only in ceremonial song and speech.[2] The other two (211 and 324) appear to have more vitality, since they are employed with a considerable number of loan-stems; but even so, speakers are not always consistent, so that one may hear, for example, both nufáifate *my pipe* (Eng. pipe) and nufáifa, both nátite and nátię *my Capsicum* (*Cayenne pepper*), from áti *Capsicum*, contrasting with náti *my brother* from áti *brother*.[2a] In at least one instance the sequence -ri (213) + -te (324) is employed; so, in gaiúriteti biáurite *thy uncle has tobacco*, iáu *uncle* underlies the last word, while iúri *tobacco* has been converted into an attributive adjective, gaiúrite *having tobacco*, and this into an aorist verb by adding -tI + -i.

With a small number of nouns may occur one of the locative suffixes, -da *in*, -ha *at or in*, -bu *at (place)*, (325–327); as in ómada *in the road* from óma *road*, baránaha *at sea* from barána *sea*, áudobu *at town* from áudo *town*. These appear to be quite unproductive today; and in this they differ from two other locative suffixes, -rugu *within* and -uagu *upon* (333–334), which are fully alive, and the first of which at all events is employed to reinforce -da (325), as well as without it. Examples: ómadarúgu *in the road*, ganálirugu *within the deep* from ganáli *deep sea, depths of the earth*, or *earthenware jar*; légeuagu *upon his shoulder(s)*, from lége *his shoulder(s)*.

The locative suffixes may be followed by one of two directional suffixes, -ų *to or toward* (341), or -gię ~ -geę *from (out of, through, by way of, at the . . . of, etc.*, 342), which occur with positional nouns and locators (see below). So, ómadaų *into the road* from ómada *in the road*, baránahaų *to sea or into the sea* from baránaha *at sea*, lanágaų *to the back of him—backward* from lanága *his back*, lúmaų *until or as far as it/him* from lúma *together with it/him*, lídaų *into it* from lída *in it*; and áudobugię *from town* from áudobu *at town*, ganálirugúgię *out from the deep/jar* from ganálirugu *within the deep/jar*, ligíbugię *facing him* from ligíbu *his face*, lanágagię *at the back of him* from lanága *his back*, luáigię *its reason (or cause)* from luái (~ luária in ceremonial speech) *away from him*, lúmagię *since (time) or from (place) it/him* from lúma *together with it/him*, láugię *over it/him* from láu *on or about it/him*, lídagię *out of or through or by way of it*—or, of inanimate objects, *from among them*, contrasting with hádagię *from among them (animate beings)*—from lída *in it (or inanimate them)*.

[2] Despite the striking resemblance of these suffixes, -li and -ru, to the complex verbal suffixes, -li (112 + 103) and -ru (112 + 104), identification seems to be impossible.

[2a] It seems worth mentioning here that almost all nouns which take these subordinating suffixes denote 'alienable' things or beings. Apart from one or two occurrences of -ne in ceremonial songs (where it may quite possibly belong to a different morpheme), the only exception I noted was the doubly subordinate theme and base -iáurite, with underlying iáu *uncle*—or more exactly, *mother's brother, father's sister's husband*, or, as a form of address only, *older unrelated male*. Ceremonial -úgucili and -úgucuru (colloquial -úguci *father*, -úgucu *mother*) also appear to be exceptional in this respect; and for this reason it may well be that the suffixes -li and -ru that they contain do not belong to the same morpheme as is seen in -umáragali *maraka*. No subordinating suffixes are found with the names of any body-parts, (except for uábulugúne in the song as cited above), nor with any other kinship terms. On the other hand, the nominal-absolute markers are found with both 'alienable' and 'inalienable' nouns; so hį *fruit (offspring)* and hítao *blood* (cf. tį *her fruit* and títa *her blood*) are always treated as inalienable, while haráua *ax* and hálao *seat (chair)* (cf. laráuą *his ax* and lála *his seat*) are presumably alienable.

In cases such as that illustrated by the last example, a suffix, -buri, may be added in order to distinguish more than one from a single thing or event; so, in lídagiębúri lagóburi óma *by way of disused paths*, the plurality of óma *path* is indicated by -buri in the first word; while in haiábiburi *their coming on more than one occasion*, from haiábi *their coming* (*once*), the prefix hA- (7) refers to a plurality of animate beings who came, and -buri to the plurality of the event, *their coming*.

The suffix -buri belongs to an outer layer of derivational suffixes which may occur as word-final or, in verbs, as base-final, with any word class. Among the more common are: repetitive -ia, continuative -meme, diminutive -rao, restrictive -rog(o), inclusive -buri, completive -gubai, augmentative -tima, and—in word-final only and comparable with 204—durative -giua, (351–358). Their meanings are lexical rather than grammatical; and the last four—or possibly five—are more in the nature of enclitics than suffixes. Moreoever, repetitive -ia has a free counterpart, iáų *once more*; -rao is obviously related to the stem of aráoda *to beget or to breed* and to the nouns iráho *child*, niráo *my child*, (to which it may be added, as in tiráorao *her little child*); the restrictive can form the base of a verb, as in rogǫiąi *it is only*, or combine with the completive in the free particle gubáirogo *after all* (*despite everything*); the inclusive may be proclitic to a verbal particle, as in burí-tia (*not*) *at all*; and the augmentative occurs as a free modifier in reduplicated tíma-tima *real real*, or as a verb base in buídu timá(rao)ti *he/it is* (*a little*) *better*, but more literally, *good genuine-*(*a little*)*-is-he/it*. The more usual way of expressing comparison is also phrasal: buídti hauái (∼ hauária, ceremonial) *he's better than they*, but literally, *he's good beyond-them*. These suffixes, and perhaps others, must therefore be regarded in some sequences as morphologically free though phrasally bound. They necessitate, nevertheless, the setting up of another position class.

To this class also, since it occurs only as word-final, belongs a very different sort of morpheme, the nominal-absolute marker -o ∼ -i ∼ -u (359), employed with most nouns that begin with a vowel and have stem-final /a/ or /e/, the former taking -o and the latter -i in their absolute forms, while -u is a rare variant. In some cases this suffix is employed conjointly with the absolute-marker prefix h- (31). Examples: hálao *seat* from -ála, arónao *arm*(*s*) *or wing*(*s*) from -aróna, arónei *captain* from -aróne, égei *shoulder*(*s*) from -ége, ęu *male genitals* from -ę́. Another suffix which has an identical function with some stems occurs in my data as -ni ∼ -ię; this can, I believe, be identified with nominalizing and nominal -NE (211)—despite the loading of this morpheme's functions. Examples of its use as a nominal-absolute marker are: ilógoni *living property* from -ilógo, anágani *back* from -anága, umégeni *necessary possession* from -umégę (cf. emégera *to need*), fų́ieni *wrist* from -ufų́ie (Fr. poignet), and amúleię *younger brother* from -amúlę.[2a]

A few other important suffixes remain to be discussed and assigned, in so far as this is possible from available data, to their proper place in the pattern outlined above. These are: collective -gu (322, NP), propensive -habu (323, NP), generalizing -(u)ga (332, NP), basal -(i)na (222, but belonging, in its NP distribution, under 340), and productive -dVna (344, NP).

The collective suffix, -gu, is employed to the exclusion of the nominal pluralizer with nouns denoting inanimate objects, although not with them alone; as well as with adjectival particles, to which it imparts the meaning *as a whole*, (see now what is said under **3.1** above concerning the word tigárigu). Examples: lumégegu *his belongings* from lumégę *his necessary possession*, lumádagu *his friends* from lumáda *his friend*, éregu *force* (*as a whole*) from érei *strength*; and with adjectival forms, háragu '*healty*' (to

use an informant's translation) from hára *hot*, gudémegu *wretched* (*calling for pity*, or *poor*) and hísięgu *likable or lovable* when these qualities are considered as appreciable to all rather than to one in particular. In some cases there is, from the English-speaker's standpoint, a change rather than an increment of meaning, as in sarágu *heaps* (*a large quantity or number*) *of* from sara *upright*, héręgu *difficult* and méręgu *easy* from hére *strong* and mére *weak*; although here the former have retained and the latter lost suffix—or rather superfix 211 as a subordinator. To the same position class belongs -habu (323), whose meaning is best seen by comparing its uses to those of the foregoing (-gu), as in gudémehabu *compassionate*, magúdemehábu *pitiless*, hísiębabu *affectionate*; or, in their nominal counterparts, nugúdemehábu *my pity* (*for others*) from nugúdeme *my wretchedness*, nísiębabu *my affection* from nísię *my likableness*. As in the case of -ísię (v. last paragraph of **3.1**), gudéme is usually verbalized, as in gudémetu nú *I pity her*, but literally, *she-is-piteous for-me*, (in which phrase -gu could have no place).

The generalizing suffix, -(u)ga (332), is employed with nouns and with particles when reference is made to some prevailing state rather than to particular beings or objects. Examples: lérauga *its roughness* and hérauga *rough*, from lére *its/his strength* and hére *strong* respectively, with reference to the sea or the elements; lidíliguga *its* (*prevailing and over-all*) *coldness* and diliguga *generally coldish*, from lidíligu *over-all coldness* and díligu *cold on the whole* (containing collective -gu) respectively; liuíauga *its dirtiness* (*as a whole*) and uíauga *generally dirty*, from liuíe *its dirt* (*in particular*) and uíe *dirty*; húiaugati dą *it's rainy weather*, from húia *rain* (cf áhuia *to pour down*); maníga *silent or silence* (*as a prevailing state*) from maní *silent* (*of individual being or thing*), málauga *empty* (prevailing state, also *lonely*, *sad*), from mála *empty* (particular, a privative adjective from the noun ílao, -ila *contents*).

The basal suffix, -(i)na (222), besides converting verb bases into gerund-like particles is employed to derive nouns from other nouns, and particles from other particles, as in tugúdina *her heel* from tugúdi *her foot*, tánina iąuari *her-cause trouble—the cause of trouble* from táni *her own* (cf. ánida *to possess*), haliáina *where belonging to* from halía *where*, dúnarugúna *belonging to* (*the*) *water* from dúnarugu *in* (*the*) *water*, which are nouns; and hámaruguáina *gently or carefully* from hámarugua, stative of hámaru *slow or careful*, húduguáina *in a kneeling posture* from húdugua *kneeling*, which are particles. In this function, the basal suffix belongs to position class 340, since it can follow -rugu (333) and precede the nominal-absolute marker 359, as in ugúdinao *heel*. Tentatively placed in this class (it has not been found in any derivational sequence) is -dVna (344), whose meaning is *productive of*. Unlike the causative suffix (331), it occurs with nouns, as in tebégidina *her merchandise* (*goods for sale*) from tebégi *her payment* (*price, value, cost, return for goods or services*), as well as with adjectives, as in the base of níbusigáidonáti *it is shameful* from níbusigáiti *he is ashamed*.

Some usually derivational suffixes may be conversional in some instances. So, for example, nominal -rugu (333) and -o (359) are nominalizing in arámodaguárugu *in secret*, from the verb arámodagua *to hide* (*reflexive*), and hurárao *play*, from the particle hurára *playing*, base of the verb áhurara *to play*. Presumably, a similar change of form-class is involved in hámaruguárugu *cunning* from hámarugua *careful*.

While conversion can occur at almost any point (cf. sogóinali *the past* from sogóina *passing* plus nominalizing 212), non-conversional sequences are infrequent in spontaneous (as opposed to elicited) forms. On the other hand, considerable use is made of

single derivational suffixes, as may be seen by the set: dagágua *squat* (with 321), dagágoda *set down—deposited* (with 331), dagáina *pregnant* (with 222, belonging, in derivational function, to class 340), and dagáburi (túri) (*her breasts are*) *full and firm* (with 355); all from the stem dagá *settled, landed, come to rest*, whence adágara *to land up, to come to rest* (*at a place*).

Some isolable affixes must remain unclassified for lack of sufficient data. So, there is a suffix, -gi, which may or may not be identical with the homophonous aspect marker (204). When a word containing it occurs as predicate complement, the following auxiliary verb takes the conjunctive form, as in cibági hamáų-ti *they washed her nevertheless*, compared to cíba hamágiru *they wash her still*, cíba haméru *they have washed her*, cíba hamútu *they washed her*; (compare also eménigi *hopeful or confident* with eméni *hesitant or withholding*). Other derivational suffixes appear to be: -mu, as in ibárimu *son-in-law* from ibári *grandchild*, and in baríerumu *one who keeps by the barrier* from borrowed baríeru *barrier*; and -namu, as in uáinamu *full-sized or grown-up*, compared with uáiri *big* and uáihali *he is old*, uáiharu *she is old*. Unproductive (and probably 'meaningless') are the commutable segments seen in binádo *former* compared with bináro *formerly* (*long ago*), anúfunei *quality inciting fear* compared with anúfudei *fear*, ám(u)iągo *another* (*future*) *time* compared with ámu *other* (*different*) and with amíągua *to replace*, marásualugu *untruth* compared with marásua *untruthful*, and nibágai *alive* compared with ibágari *life*, the last two apparently being conversional.

The closed class of locators is constituted by several subclasses of substitutes, all but one of which include positional reference, all but one of which include pronominal reference, and all but one of which consist of primary derived words. The three largest subclasses are characterized by the suffixes -Ha, -ra, -gVta, -gVra, -te, and -g(u)ia, (401–406); the first four of which they have in common, and which indicate the position of the referent with regard to the speaker. In the first subclass they are added to one simple stem, ia-, denoting place; in the second, to one of seven simple pronominal stems, nu-, bu-, li-, tu-, ua-, hu-, ha-, denoting person; and in the third, to one of seven complex stems, anná-, abú-, iní-, inú-, ąuá-, onó-, aniá-, in which each of the person-marker suffixes (101–107) combines with a predicative root, N-. The fifth of these locator-suffixes, -te (405), indicates approach of the referent in space or time; and occurs only with stems of the second and third subclasses. The sixth, -g(u)ia (406), is found only with stems of the second subclass; with which it forms the nearest equivalent to personal-definite pronouns. One of the directional suffixes, -ų (341) or -gię (342), may be added to locators of the first subclass. Examples: iá(ha) *here*, iáhaų *hither*, iára *there*, iáragię *thence*, iágota *over there*, iagóra *away yonder*; lea (∼ líha in ceremonial speech) *he here or masc.-this or this one*, líra *he there or masc.-that or that one*, lígita *he or masc.-that over there*, ligíra *he away yonder or masc.-yon* (*distant or past*), (dimásu) líte *masc.-sg.-coming* (*Sunday or week*); iníha *here he/it is*, iníra *there he/it is*, inígita *he/it is over there*, inígira *he/it is away yonder* (*in space or time*), inúte (ábą guríara) (*a dugout canoe*) *fem.-sg.-is-coming*; ligía *it is he/it/this/then*, nugúia *it's I*, or *as for me*, bugúia *it's thou*, or *as for thee*. Instead of these last two forms, men employ two unanalysable particles, áu and amóro.

Locators of the third subclass which contain -ha (401) or -ra (402) may be made nondemonstrative by the addition of a secondary suffix, -į (411); the change of meaning imparted by it being most conveniently shown in French translation as follows: iníha *le voici ou il est ici*, iníra *le voilà ou il est là*, iníhaį/iníraį *il y est ou il y a*; with this difference, that the Island Carib forms,

unlike French il y a, show gender or plural-animate number.

The remaining locators consist of bound themes to which a person-marker suffix (101–107) must be added: hagá- *where is*, higá- *come conjunctive*), áhą- *when or then or if is*, káta- *what or who is*. Examples: hagáų *where is she?* higábu (iáhaų) *come (hither)*, áhąi (tagąba) *when or then or if 'tis him (she hears)*, kátaią *who are they?* The first three of these themes are not currently analysable; but a phrase containing ia- was recorded, iagái-gia *let him be here*, which appears to be analogous to hagái-gi *where is he?* The forms higábu and its irregular plural higáugu are replaced in the speech of the men by currently unanalysable áho (ié) *come (here)*. The fourth of these smaller subclasses is exceptional; for it may be either interrogative, as above, or else function as a noun, as in kátai líra *that masculine thing*, kátaų túra *that feminine thing*, ní káta *nothing*; while underlying it is the free particle ka *what or who*.

4. There is but little alternation so regular, in this dialect, that a general statement alone suffices to cover all cases; nor is it on the whole so irregular as to warrant a piecemeal treatment. An attempt is made here to describe conditions for the occurrence of the principal bound and free variants of minor morphemes already discussed; those affecting the phonemic shape of major morphemes being left to sections relevant to the latter.

In the prefixes labelled uA- (5), hA- (7), kA- (8), gA- ~ hA- (21), and mA- (22), the symbol A equals /a/, /e/, or zero. Before the verbalizer A- (11), and before a very few nominal themes and bases with stressed initial í- (as also in the case of 22 before the particle ítara *thus*), A equals zero. Elsewhere, A is assimilated to vowel harmony with a following /e/, but otherwise equals /a/, absorbing theme- or base-initial vowel except for i- or u- when these phonemes form part of a vowel-cluster. Examples: mafálarų *not following*, from mA- (22) + A- (11) + fala *follow* + -ra (231a) + -U (221) + -NE (211); míri *nameless*, from mA- (22) + íri *name*; mítara *not thus*, from mA- (22) + ítara *thus*; géleue *flowering or (-)flowered or having flowers*, from gA- (21) + íleue *flower(s)*; hagíbu *their faces*, from hA- (7) + igíbu *face(s)*; haiúrite *their tobacco*, from hA- (7) + iúri, -iúrite *tobacco*. The A of these prefixes has been found to equal zero before the following nominal themes and bases in stressed initial í-: -íbe(gu) *kind—natural group*, -íbiri *part or half*, -íri *name*, -ísię *likableness*, -į́ *fruit*, -ídi *departure* (in the case of 22 only), and their suffixed derivatives. Exceptionally, it also equals zero in the case of gA- (21) before -iárą *power or ability*, and in that of mA- (22) before -iáb(u)i *coming*; so, giárą *able or possible*, miábi *not coming*. Exceptionally also, the initial vowel of the theme and base -úį *meat* is absorbed by A of these prefixes, while that of -údi (a dialectal variant of -ídi) *departure*, and those of -úni ~ -ų́ *purpose or to/for* (the latter variant appearing, except in ceremonial speech, with prefixes of class 0, the former with those of class 20) are not so absorbed; so, uA- (5) + -úį equals uáį *our meat*, uA- (5) + -ų́ equals uáų *to or for us*, mA- (22) + -údi equals máudi *not going*.

The former of the two variants indicated by gA- ~ hA- (21) definitely may be said to be basic in the sense that it alone combines freely with nominal bases formed from recent borrowings. The latter variant has not been found with any verbal noun, and with only a very few (though common) other nominal bases, which are (so far as my data go): -anáime *violence*, -anúfude *fear*, -ára *heat*, -arítagu *thought or remembrance*, -ére and -érę *strength*, -ę́ *male genitals*, -ísebe *agreeableness or pleasantness*, -ísię *likableness*, -íta *blood*, and their suffixed derivatives such as -ísiębabu *affection*, -ísięgu (*collective*) *likableness*, etc. Examples: hára *hot*, hére *strong*, hésebe *pleasant or agreeable* (of places rather than people), hísię *likable* (of persons rather than places), háta *bloody*. This variant of the attributive adjectivalizing prefix must

be carefully distinguished from the third-person plural pronominal prefix, hA- (7), since their products are homophonous, as in the case of háta *bloody*, háta *their blood*, with which compare híta *your blood* (with 6) and absolute hítao *blood* (with 31 and 359), all from the base, theme, and stem -íta *blood*.

In the vast majority of verbs derived by its means from (free) underlying forms of another class, the verbalizer A- (11) equals—or may equal—/a/; although with most speakers it is usually assimilated, as is always the case with A of the prefixes described above, to vowel harmony with a following /e/; so, from rísi *rich*, arísida *to become rich*; from tęgi *thanks*, etęgira *to thank*; from sa *shorn* ásaha *to shear*; from so *ardent*, ásora *to bake or roast* and ásoha *to sting*; and from sų *every or all*, ásura *to finish*. In a very few cases, A- (11) is assimilated to syllabic /i/ of the base; so ímira *to stab*, but mirá-bai *stab him*; íuira *to whistle*, but uį-bai *whistle it*. In verbs that are derived primary words, A- may be absorbed by the base-initial vowel, thus equalling zero, as in the cases of áta *to drink*, íciga *to give or to lead*, ígira *to leave*.

From such formations as ílu *swelling* (N) from lú *swollen*, ílo *absence or length* (*of time*) from ló *absent or long* (*time*), ílamao *hunger* from láma *hungry*, ihémeni and -ihémę *odor* from héme *odorous*, irísini and -irísį *riches* from rísi *rich* (Fr. riche); as well as such possessive nouns as idúnari from dúna *water*, idóburi from dóbu *stone*, isábute from sábų *soap* (Fr. savon), and isíreste from sírasi *scissors* (Sp. tijeras), it appears that the basic shape of the nominalizing and nominal prefix I- (12) is i-. However, there is today a general tendency to assimilate this prefix to vocalic harmony with a following vowel other than /a/, and to employ u- instead of i- before a labial consonant when the following vowel is /a/, (a- itself being a very rare variant of this prefix). Examples: tebéneri *her door* from béna *door*, tubáte *her stockings* from bą *stockings* (Fr. bas), tigąte *her gloves* from gą *gloves* (Fr. gants), nogóui *my fish-hook* from góui *fish-hook*, nubúgiote (as well as nibúgiote) *my God* from búgiu *God* (Fr. bon Dieu), nugúrasų *my patience or courage* from gurásu *patience or courage* (Fr. courage). However, in at least one instance, it would seem as if what appears to be a rare variant of this prefix had become distinctive; compare tiuáiri *her size* (from uáiri *big*) with tauáiri *her old man—her husband* (which may or may not have the same base). In combination with nominal themes and stems having vowel initial, this prefix is absorbed (equals zero); although its presence may be indicated by a change in the stem or theme (usually affecting stress), as in ká iámadi *whose basket*, but ká iamádi *what basket*, from iamádi *basket*.[3]

This trend—if we may call it such—to-

[3] An apparent exception is the word hú *hoe* (Fr. houe), whose subordinate theme and base is -uute, as in núute *my hoe*, uáute *our hoe*, máute *without a hoe*; the probable explanation is as follows: Bilingual Island Carib-French speakers who introduced this word must have been aware that the initial aspirate belonged to the root, and was not a prefix like their own nominal-absolute marker h- (31); for otherwise, in combination with the prefix uA- (5), for example, the root of hypothetical *-ute must either be reduced to zero (no occurrence of which has been observed), or else reduce A of the prefix to zero (as in the case of gA- + -í *fruit* equals gí *having fruit*), thus giving rise to a hitherto non-existent initial sequence, /uu/. Most probably, therefore, such a form as *nuhúte or *núhute was at first employed. However, while the bases of adjectives such as héme *odorous* and hóro *heavy* retain the aspirate when they are converted into nouns (ihémeni *odour*, lihóro *his weight*), I do not know of a single prefixable nominal base, stem, or theme beginning with /h/ in the language spoken today; such nouns as háo *ant*, húa *frog*, and húia *rain* never taking possessive or adjectivalizing prefixes (although the last is verbalized as áhuia *to pour down*). Since the subordinating suffiix -te (324) combines only with stems of the noun class, it is hardly surprising if the /h/ of hu *hoe* were eliminated from base and theme by analogic leveling; while the prefix I- (12), in the variant u-, had to be retained in order to fit the phonological and morphophonemic pattern of the language, as explained above.

ward vowel assimilation, progressive or regressive, partial or complete, has reached different stages in the case of different morphemes. In that of the participial suffix -U (221), with nominalizing -NE (211) added to make complete words, we get -i as in áigini *meal—eating*, -o as in adógoni *doing*, and -u as in abúguni *chasing away*, agąbuni *hearing* eréruni *speech*, which have áiga, adóga, abúga, agąba, and eréra as free verbal bases. Nevertheless, more sophisticated informants will claim, somewhat uneasily, that -u is 'correct' in all such forms; and though aríha *to see* + -U (221) + -NE (211) normally gives aríhini *sight*, and t- (4) + aríha + -U + -NE + -i (103) = taríhini *her seeing him*, the latter combination with -u (104) in place of -i (103) yields taríhunu *her seeing her*, while naríhubadíbu *I'll see thee* is the normal product of n- (1) + aríha + -U (221) + -ba (201) + -dI (111) + -bu (102). When it follows either verbalizing or tensive -ha (232a or 301), -U (221) equals -u in stressed and zero in unstressed syllables. It always equals zero after middle-voice verbalizers (230b), which lose their final /a/ in this position, as also after stato-reflexive -gua (321), which usually loses its final /a/ in this position; (I am unable to explain why, in a few recorded cases, this latter loss does not occur).

The same alternation of i ~ o ~ u recurs in the locator suffixes -gVta (403) and -gVra (404), in which V equals /o/ after stem-final /a/, but is assimilated to preceding /i/or /u/, as in hágota *they over there*, lígita *he over there*, túguta *she over there*, hagóra *they away yonder*, etc. It coincides, moreover, with the nominal-absolute suffix -i ~ -o ~ -u (359), as in arónei *captain (of a boat)*, arónao *arm(s) or wing(s)*, ęu *nale genitals*, whose stems are -aróne, -aróna, and -ę respectively. In both these cases, apart from the rarity of the u-variant in the latter, alternation may be said to be regular.

With the exception of verbalizing -ha, suffixes of 230a/b lose their final /a/ before passive -ua (311) or participial -U (221; see now what is said of these reductions under **3.2** above and in the last paragraph but one). Similarly, causative -goda (331) and stato-reflexive -gua (321, the former always, the latter in the vast majority of cases) lose their final /a/ when -U (221) is added. Passive -ua (311) is incompatible with middle-voice verbs; also this suffix loses its final /a/ when followed by participial -U, this combination always yielding -úu, with primary stress on the first of the geminate vowels.

The parenthetic vowel of the basal suffix, -(i)na (222), is realized after /a/ or /o/, lost after /u/, or /i/; 222 has not been recorded by me after any stem ending in /e/. Examples: haliáina *where belonging to*, from halía *where*; sogóina *passing*, from sógo *past*; dúnarugúna *belonging in the water*, from dúnarugu *in the water*; tugúdina *her heel*, from tugúdi *her foot*. The parenthetic vowel of -g(u)ia (406) is realized only after stem-final /u/, (so: nugúia, bugúia, ligía, tugúia, uagía, hugúia, hagía, *it is I, thou, he, she, etc.*). The parenthetic vowel of the generalizer, -(u)ga (332), is realized after /a/ or /e/, the latter stem-final phoneme being changed to /a/ on the addition of this suffix, and lost after /i/, /o/, or /u/. Examples: hárauga *hot (in general)*, from hára *hot*; hérauga *rough (sea or weather)*, from hére *strong*; dilíga *cold (in general)*, from díli *cold*; sóga *burning or stinging (in general)*, from so *ardent*; dilíguga *generally coldish*, from díligu *cold as a whole*.

The third-person singular pronominal suffix of feminine gender (104) appears as oral -u when it follows a consonant, and as nasalized -ų when it follows a vowel. The forms -ią and -ių of the third-person plural pronominal suffix appear to be free or stylistic variants, while this morpheme occurs as -nų only and always when preceded by the progressive-aspect marker -ią (202). As a variant of the nominal pluralizer (108), -nų is found always but not only with nouns ending in a nasalized vowel or vowel-sequence; so, namúlenų *my younger siblings*, from namúlę *my younger brother*; but also

nítunų *my sisters*, from nítu *my sister*, and muládunų *'Spaniards'* (so-called), from muládu *'Spaniard'*. Other variants of this morpheme will be found exemplified under **3.2** above.

Alternation in the relators -dI (111) and -lI ~ -r (112) is as follows:—In those paradigms in which -lI must precede -i (103), this morpheme occurs as -r before -u (104), and nowhere else. The symbol I of -dI and -lI equals /i/ before -na (101), -bu (102), and in deliberate speech only before -ua (105) and -ho (106); before third-person pronominal suffixes (where only -lI ~ -r can occur), and in fast speech before those of first and second persons plural, this I equals zero. The symbol I of the aorist-aspect marker, -tI, which, unlike the relator -dI, occurs before all seven pronominal suffixes, differs from the foregoing in that it equals /i/ before all markers of first and second persons, zero before those of third person.

As has been seen under **3.2** above, I have grouped such divers forms as -ni, -ne, -ię, -n, -ę, and V̨ (a 'superfix' denoting nasalization of base- or stem-final vowel) into a nominalizing and nominal morpheme labelled -NE (211). Not all these variants appear with equal regularity. In -NE's commonest—and probably only productive—function, as a nominalizer, the alternation -ni ~ -n ~ V̨ is quite regular. The variant V̨ occurs only and always as word-final or, before an aspect marker (200), as base-final, in words bearing an initial prefix of class 20 or one of class 0. The variant -n occurs whenever this suffix (-NE) is non-final before another (except -(u)ga, for which see following paragraph) beginning with a vowel. In all other cases the variant -ni (or, stylistically), -ne) is employed. Examples: from borrowed -bunuru- (cf. Fr. bonheur or bienheureux), not heard as a free form: ubúnuruní *luck*, nubúnurų *my luck*, mabúnurų *unlucky*, imábunurúni *misfortune*, nimábunurų *my misfortune*; from buídu *good, pretty, intimate*: ubuíduni *goodness*, etc., tubuídų *her goodness*, mabuídų *without goodness*, from áfara *to beat*: áfaruní *beating;* láfaruníbu *his beating thee*, láfarunú *his beating her*, láfarunúa *his being beaten*, láfarų *his beating*, máfarų *without beating*. As a nominal subordinator, this morpheme most commonly occurs in the variant V̨, as in nisábadų *my shoes*, from sabádu *shoes* (Sp. zapato); but with a few nouns the variant -ni is employed, as in nibírani *my sail*, from bíra *sail* (Sp. vela), and the variant -n is seen in the compound tibíranebú *her mast*, from bírebu *mast*, of which ébu *support* is the other member. In the same function, -NE appears as the variant -ę with some few nouns ending in /i/; as in nufúlurię *my (cut) flower*, from borrowed fulúri *flower*, (native íleue *flower or blossom* being possessable only by its bearer—tree or plant, as is native hį́, -į *fruit*, supplemented, for ownership by non-bearers, by borrowed furúda). Finally, in its function as nominal-absolute marker, this morpheme occurs as -ię in only one recorded instance, and as -ni in several others, usually though not always replacing nasalization of the stem-final vowel. Examples: amúleię *younger brother*, from (t)amúlę (*her*) *younger brother*; amídani *middle*, from (t)amídą (*fem.-its*) *middle*; anágani *back*, from (t)anága (*her*) *back*.

In all these functions, -ne—heard particularly, though not exclusively, in song and recitation—may be employed as a stylistic variant of -ni. But when the generalizing suffix -(u)ga (332) is added to -NE, the resulting combination is usually -nauga, as in ladórohanáuga *its (the weather's) thundering*, from l- (3) + adóroha *to thunder* + -U (221, here equalling zero) + -NE (211) + -(u)ga (332). We therefore conclude from what we know of the comportment of -(u)ga (see last paragraph but two), that -ne, although little used in that shape today, is basic to -NE. For similar reasons, some other morphemes which usually end with /i/ must be said to end with morphophonemic E.

Except for some primary words in which their presence can so far only be suspected,

the nominalizing and nominal suffixes -lE (212) and -rE (213) are usually heard as -li and -ri respectively. The fourth of this series, -DI (214), has a variant, -t, which occurs before the verbalizing aspect-marker, aorist -tI, thus giving rise to a geminate cluster -tt-, whenever this morpheme -DI does not itself take primary stress. Thus, contrast mátatti *he is unable (or not disposed) to drink*, from mátadi *unable (or not disposed) to drink* + -tI (205) + -i (103), with mátati *he is without blood*, from máta *bloodless* plus the same suffixes. The inhabilitative adjective mátadi consists of the verbal base áta *to drink*, together with the affixes mA- (22) and -DI (214), while máta consists of the same privative prefix together with the base -íta *blood* (absolute hítao). Elsewhere, and before -tI (205) when stress falls on it, -DI equals -di, as in máharadíti *he is unwilling—he doesn't agree*, a verbalized form of máharadi, which adjective is based on the verb áhara *to agree*. It may well be that this suffix should be written morphophonemically as -DE, since its presence may be suspected in such a primary noun theme as -anúfude *fear*, by comparison with another primary noun theme, -anúfune *frightening—fearsomeness*.

The aspect marker -HA (203) is basically -ha, as in colóhadina *I have arrived*. However, when it follows a preceding /a/ or /e/ it may be reduced to -a or even to zero, as in úali *he/it is no longer there*, or *there is no more* (with which contrast aorist úati *he/it is not there*, or *there is none*), resulting from úa *no, not there, out* + -HA (203, perfective) + -lI (112) + -i (103). The occurrence and degree of reduction depend mainly on stress. After restrictive -rog(o) (354), which then loses its parenthetic vowel, -HA always equals -a. This alternation may be compared to that of the locative suffix -Ha (401). On combining with the locator stems ia-, li-, tu-, and ha-, this suffix behaves as follows: after ia- and ha- it is entirely lost except in ceremonial speech (in which iáha and háha were heard), or when the directional suffix -ų (341) is added to the former; so ia- + -Ha equals iá *here*, but ia- + -Ha + -ų equals iáhaų *hither*, and ha- + -Ha equals ha *they*. Again excepting ceremonial speech (in which líha and túha were heard), li- + -Ha equals lea *he here*, or *this*, or *this masculine one*, and tu- + -Ha equals toa *she here*, or *this*, or *this feminine one*. Alternation indicated in 204 and in 342 is free; while my data are too scant to explain that in 344.

5. As appears from the definition of this form-class given under section **2**, there are three morphologically distinct subclasses of verbs: those whose themes begin with the verbalizing prefix A- (11) and end in a verbalizing suffix of class 230, with or without the addition of one or more of the derivational verbal suffixes; those whose themes end in an aspect-marker suffix of class 200; and those belonging to the closed subclass of auxiliary verbs. However, five of the latter, whose themes are -uba-, -íą- ~ -ią, -a- ~ -uma-, -agi- ~ -umagi-, and -umutI-, either themselves contain the aspect-marker suffixes or are very closely related to them, formally as well as functionally; so that the last two subclasses together constitute an opposition to the first, which is non-aspectual or indefinite.

Structurally, the auxiliary in the phrase áfara lubádibu *beat (or kill) he-will-thee—he'll beat thee* resembles the imperfective verbs láfarubadíbu, which has the same meaning, and lúmaribadíbu *thou'lt be his wife*, with the underlying noun lúmari *his wife*, rather than the indefinite verb láfarabu in the phrase láfarabú-me *he'll beat thee*, which leaves aspect and tense to be indicated by context, in this case by the enclitic tense-particle me. We may divide and translate the first imperfective verb as participial láfaru- *his beating* plus aspectual -badíbu *thou'lt be*; but even this more literal translation is a makeshift, for the so-called imperfective marker -ba is indifferent to temporal relations, as may be seen by its employment in verbs that have a subordinate function. Compare: (má sá tugúia) lúmaribaų

(Raimúdu) (*isn't it she*) *who-is-his-wife* (*of Raymond*)? with lúmaribaų (nége) *she'll-be-his-wife* (*quotative*); and, from aríha *to see*, ká larihubaų *whom f. -sg.-did-he-see?* or ká aríhubarú (iráho toá) *who saw-her* (*this girl*)? with laríhubaų (lubára táfaiarú) *he'll see her* (*before-it her-sailing*—i.e., *before she sails*).

6. An indefinite verb may have a particle, a noun, or a bound form as its base. So, arísida *to get rich* and causative arísidagóda *to enrich*, whose borrowed base, the particle rísi *rich* (Fr. riche), is also that of the noun irísini *wealth or riches*; or agúmulaha *to smoke*, whose base, the particle gumúla *smoky* (cf. gumú- *consumed* and -íla *contents*), is also that of the noun gumúlali *smoke*. Or, with noun bases, we may cite egelęca *to lock*, from borrowed gelę *key* (Fr. clef), and amáinaha *to garden*, from máina *manioc-garden*. So far as my own data are concerned, about one out of four indefinite verbs has a bound base; and among these are many that denote the more basic activities and processes; so, áfagua *to strive or struggle*, áfaha *to suffer*, áfara *to beat or to kill*, agąba *to hear*, áiga *to eat*, áigua *to fall*, arámoda *to hide*, aríha *to see or to look at*, arúmuga *to sleep*, áta *to drink*, áuca *to try or to fish*.

Only verbs of this subclass have a true infinitive, and only they can underlie a participle or a verbal noun. Participles rarely are but may be free forms, as in (inúha bítu toa Frąséska) auąseru (iébe lídą teleskuélehą) (*here's thy sister Francesca*) *advancing* (*just-as in-it her-schoolong*), from auąsera *to advance or progress* from borrowed auąse *advanced* (Fr. avancé), and whence is formed the noun naming the activity, auąseruni *advance, progress*. Such verbs are indefinite in that they rely on context or on total situation to indicate aspect and tense; but they may contain pronominal reference to subject or goal or both, and thus be finite, as in tarísida *she got* (*gets or will get*) *rich*, ká arísidagódaų *who enriched* (*or enriches or will enrich*) *her?* larísidagódaų *he enriched* (*enriches or will enrich*) *her*. They are usual (if not obligatory) in all contexts that can leave no doubt concerning temporal relations, such as, for example, urínauga baríhana *yesterday thou sawst me*, harúga baríhana *tomorrow thou'lt see me*, súądą baríhana *often thou seest me*, higábu baríhana *come* (*and*) *see me*, áhana baríha *if thou seest me* (literally, *if-me thou-see*). In other cases, tense-marker particles may be employed, as in ída me baríhana *when wilt thou see me?* ída buga baríhana *when didst thou see me?* Or total situation without contextual elucidation may suffice in many such expressions as náibuga *I'm going*, from áibuga *to go or to walk*; teręga lú *she said to him* and neręga ábą kátai hú *I'll tell you something*, containing eręga *to say or to tell*. Examples in context are: láibahabú-me iáų *he'll chase thee again*, with áibaha *to chase after* and me *future tense*; léa-buga nadóga dą le iá bá *what I did when thou wert here*, with adóga *to do* and buga *past tense*; súądą tadóga hjáru toa sábų *this woman often makes soap*, with adóga *to make* and borrowed súądą *often* (Fr. souvent + temps); súądą tia láu acúraguaná lúma N *it often* (*comes*) *over him* (*to*) *slander me together with N*, with acúragua *to slander*; dą le tídi áluahaų *when she went to look for it/her*, with áluaha *to look for*; hátagua le lárigi lídi númari *they got to drinking after my husband's departure*, with átagua *to go on a drinking bout* (from áta *to drink*) and the possessed noun lárigi *after it*.

In a very common construction, aspectual and pronominal expressions are divided; a finite but indefinite verb being preceded and presupposed by a pseudo-infinitive aspectual verb, as in imperfective halíaba baríhana *where wilt thou see me* and perfective halíaha baríhana *where hast thou seen me*, in which the noun halía *where* has been verbalized by the aspect markers -ba and -ha respectively.

Although the complement of an auxiliary verb may belong to any word-class, this function is often fulfilled by an infinitive indefinite verb which carries the lexical meaning, while aspect and pronominal reference to subject and goal (in the case of transitive verbs) are expressed by the auxiliary; so, aríha nubádibu *I'll see thee* and aríha bubáų

thou'lt see her (imperfective); aríha nádibu *I've seen thee* and aríha báru *thou'st seen her* (perfective); aríha numútibu *I saw thee* and aríha bumútu *thou sawst her* (aorist).

Aorist also is the verb-phrase constituted by the first two words of the sentence aríha lumúti iráho ligía gáigusi *the boy saw the jaguar*, but more literally, *see he-did-it child it-is-he jaguar*, which begins the translation of 'a possible paradigmatic sentence series' proposed by Nida in 1947. This series, which contains twenty-two past-tense English verbs, was given 'some narrative sequence, for then the informant can begin to think in terms of context, and the transitional phenomena involving casual and temporal relationships, . . . will begin to be evidenced.' Once my informant had grasped the fact that the sentences were connected as a narrative, he translated all but the first (given above) with ábą *one, a, and then* (which, in its function as a sentence connective, is subordinating) followed by verbal nouns instead of the English verbs. Thus: ábą lafálaruní iráho gáigusi; ábą laríhini gáigusi iráho léa; ábą láibagų gáigusi lárigi iráho léa; ábą laríhį iráho léa ábą tídibu uéue, ábą láibagų tuágu; . . . *and-then his-following-it boy jaguar; and-then its-seeing-him jaguar boy this; and-then its-running jaguar after-him boy this; and-then his-seeing boy this an its-stem tree, and his-running toward-it;* . . . , to give a more literal re-translation.

The result was unexpected; but it does bring out rather clearly two characteristics of this language: the obligatory expression of personal relations that to us are redundant, and great economy in the expression of aspectual (and secondarily temporal) relations, which once expressed remain implicit in what follows until they are changed. Such a series of verbal nouns is not, of course, any more usual in Island Carib than is the corresponding series of past-tense verbs in the English from which the translation was made. A rough count of verbs and verbal nouns (including auxiliaries) from conversational texts shows the former to be almost three times more frequent than the latter (367 verbs to 128 verbal nouns); but it also shows non-aspectual verbal forms—that is, indefinite verbs and verbal nouns—to be nearly as common as aspectual and auxiliary verbs: 236 of the former to 259 of the latter. In other words, speakers make very moderate use of the more complex formations of which their language is capable.

Because of its formal and semantic resemblance to such regular indefinite verbs as áibuga *to go or to walk*, áibaha *to chase after*, and áibagua *to run*, the imperative theme -áiba *go* may be admitted as an anomalous member of this subclass. It is anomalous in that it has no infinitive, underlies no participle or verbal noun, and is restricted to the imperative function. Like the more common imperative construction, which, being formed by means of an auxiliary verb, is phrasal, -áiba is conjugated in all three persons and in both numbers; but unlike the former it has a suppletive variant in the first person plural; so: náiba, báiba, láiba, táiba, káimą, háiba, háiba. Other, regular indefinite verbs are occasionally employed in this way with imperative import; so, báiga núma *eat with me*, containing áiga *to eat*.

7. Aspectual and auxiliary verbs, although they constitute a unit as opposed to the indefinite verb, are morphologically distinct; the former being by definition a secondary word converted from an indefinite verb, a locator, or a particle by means of one of the aspect-marker suffixes (200); while the latter is one of a closed subclass, whose roots, with two exceptions (v. **7.2** below), combine neither with conversional nor with derivational affixes. All auxiliary verbs but one must contain a pronominal prefix of class O; and all of them, as usually employed, are without any lexical meaning of their own.

7.1. The class-meanings of the aspectual verbs may be illustrated by the following examples, in which the subordinate function of the imperfective aspect, exemplified under **5** above, is ignored. The bases are: alúgura, and (tensive) alúguraha *to sell*; arúmuga *to*

sleep; halía *where*; and funá *red*; talúgurubái *she'll sell it*; tarúmugubá *she'll sleep*; halíabaų *where'll she be*; funábaų *it'll be red*, imperfective; talúguruiąi *she's selling it*, talúgurahąią *she sells it (habitually)*; tarúmuguią *she's sleeping*; halíaiaų ~ halíaiąru *where is she*, progressive; arúmugaháru *she has slept*; halíaharu *where has she got to*; funáaru *it has turned red*, or, *it is ripe*, perfective; arúmugatu *she slept*; halíatu *where is it*; funátu *it is red*, aorist; and arúmugagíru *she is still asleep or sleeping*; funágiru *it is still red*, durative.

Admittedly, the names by which the aspects have been labelled, and the translations of some forms exemplifying their functions are in the nature of a pis aller. So, haliaiaų *where is she* is progressive only in form and name, and is differentiated in translation from aorist halíatu *where is it* by a device (the neuter pronoun) that does not exist in Island Carib. The difference in the meaning of these two aspects may be shown rather more closely in this case by translating the first word as *where is she now* (or, depending on context, *where was she* or *where will she be then*), and the second by *where is she*, etc. without any reference to contemporaneity; except that the aorist form halíatu would be as incorrect, in most situational and explicit contexts, if used of an animate referent, as would be in English the inclusion of a word like *now* in an inquiry about the whereabouts of a tree. Indifferent as to contemporaneity or duration, the aorist verb expresses completion; it describes, that is to say, an action or process as accomplished, a state or condition as obtaining or attained at the time spoken of. Aorist verbs are therefore usually to be translated, when there is no contextual indication to the contrary, by the English past tense when they denote action or process, as in iǫ́buiti *he came*, erę́guati *it was said*, and by the present tense when they denote a state or condition, as in rísiti *he is rich*, sąditu *she is sick*; in some border-line cases there may be ambiguity from the standpoint of English tense, as in aríhatibu sá *didst or dost thou see?*

The features of contemporaneity and completion are not confined to the progressive and aorist aspects respectively. If the former may be said to convey *at this or that time* the durative aspect means *up to this or that time*, since durative verbs are always translatable by English forms that include the word *still*. The perfective aspect, on the other hand, represents a state or condition as contemporaneous with the time spoken of, and as resulting from an activity or a process which is completed; it thus combines the features we have called contemporaneity and completion. The first, contemporaneity, is common to such forms as náigią *I'm eating*, haugídina *I still eat or am still eating*, maráogiru *she's still childless (she hasn't any children yet)*, háuhadina *I've eaten*, maráoharu *she has become childless (she no longer has any children)*, as opposed to aorist háutina *I ate*, maráotu *she is childless*. That this is not primarily a question of tense may be seen from such contextual examples as: (ída-me liábi), náigią mé *I shall be eating (when he comes)*; (ída-me bagíribudų iá), háuhadina mé *I shall have eaten (when thou returnest here)*. The same examples may serve to show how the feature of completion is shared by aorist and perfective verbs, as opposed to those in the durative and progressive aspects.

Imperfective verbs, unlike those of the other four aspects, show no concern for either contemporaneity or completion; and are therefore negatively defined, and in double opposition to perfective verbs, which express both features. Compare one with another, badógobai (ábą híbise nų́) *thou'lt make m.-it (a sifter for me)*, (ká sá) badógobai (*what is it*) *that thou art making?* (ída lį́ą) badógobalí (líra) (*how is it*) *that thou dost /didst make (that)?* Such negative definition is unsatisfactory because, in the arrangement shown below, the named features are the positive or marked terms of the oppositions into which they enter; and to say that the imperfective is indifferent to them is almost tantamount to denying its aspectual character. As

we have seen, imperfective verbs appear indifferent to tense only in their subordinate or non-predicative function, which is modal rather than aspectual, and are elsewhere equivalent to our *shall*-and-*will* phrases. It seems probable, therefore, that its domain is the unreal.

Distinctive feature	-gi	-iąˌ	-HA	-tI	-ba
Contemporaneity	+	+	+	−	−
Completion	−	−	+	+	−
Implied prior occurrence	+	−			

In most cases, there is little difficulty in the choice of an aspect; thus the formal and semantic difference between aorist iódotibu *thou didst go* (*but mayst be back*) and perfective iódohadíbu *thou art gone*, or between aorist úati *he is out—not there*, or, *there is none of m.-it* and úali *he is no longer there*, or *there is no more of m.-it* is as great in English as in Island Carib. In some instances, however, the reason for the choice is less obvious; so, it is not immediately clear why the aorist is employed in nibágaiti *he is alive* and in sąditi *he is sick* (whose base, sądi *sick*, is borrowed from Fr. senti), but the perfective in hiláali *he is dead* (= *he has died*) and in lamáali *he is hungry*. Comparison with such a form as funáali *m.-it has turned red*, which also means, when used of fruit, *it is ripe*, suggests that Island Carib speakers regard death and hunger, but not life or sickness, as the ending points of processes whose contemporary effects require emphasis. Such emphasis may be added; so that we find, for instance, sądihadína *I've become ill* in normal opposition to sąditina *I'm ill*. On the other hand, such an aorist verb as hiláti *he is faint* (or, of a limb, *it is benumbed*), compared to perfective hiláali *he is dead* = *he has died*, shows almost as much semantic specialization of one or the other aspectual usage as now exists between the present and past participles in the case of English *seething* and *sodden*.

Other instances of aspectual specialization include the expression of relative age, as in perfective uáiaru *she is old* = *she has aged* (contrast the noun, uaiáru *love-charm*), but durative iǫgíru *she is young* = *she is still small*. The latter verb contains the same root as aorist nióraotu *she is small*; obsolete nią *small* now being employed only in petrified combination with diminutive -rao (353), inclusive -buri (355, as in nióboriti *it is slight or slender*), or durative -gi (204) as above. What appears to be a petrified use of the progressive aspect is found in the expression lámuią (ábą) kátai *it's* (*a*) *strange thing*, as compared to such general aorist use as, for example, in ámuti iráho líra *he-is-strange child m.-that—that boy is strange*, —both verbs being based on the particle ámu *other*, *different*.

In order to give some rough idea of the several aspectual verbs' relative frequency of employment, it may be mentioned here that I find, in a few pages of conversational texts, 63 aorist, 57 imperfective, 14 perfective, 14 progressive and 8 durative verbs, excluding auxiliary verbs. The prevalence of the first category is to be explained by the use to which the aorist is put in predicating qualities, states and conditions much in the same way as English employs the copula; for its occurrence in verbs of action is comparatively infrequent. On the other hand, the relatively large proportion of imperfective verbs is due to this aspect's dual function, as described above; for neither this nor the perfective aspect shows any preference for bases denoting action on the one hand or condition on the other. The progressive aspect, apart from its use with bases denoting position (halía *where*, iára *there*, etc.) or quantity (órua *three*, átiri *how much or how many*, as in átiriánų tiráhǫią lau Gibétu *how-many-are-they her-children by-him Gilbert?*), is employed almost exclusively with verbs of action or process, in which it has the same value as our durative construction with the verb *to be* followed by a present participle. A comprehensive survey of the durative

aspect's occurrences throughout all my texts shows that it is most commonly (though by no means exclusively) employed with attributive or privative particles as base—with such, that is, as contain one of the conversional prefixes, gA- (21) or mA- (22). Examples: gágucigidíbu? *hast thou still (a) father?—is thy father still alive?* and mágucihadína *I have become fatherless—my father is dead*, with gáguci *having (a) father* and máguci *fatherless* as bases; gágugilí-tia *he still has eyes—he can still see clearly*, whose base is gágu *having eyes*; maríhigidína búga *I never yet saw*, whose base is maríhi *without seeing*; máigigíą negé-buga *they hadn't yet eaten quotative*, whose base is máigi *without eating*; but also bacáruagíli *he's still drunk*, whose base is the particle bacárua *drunk*; and áfaguagídina *I still strive or struggle*, whose base is the indefinite verb áfagua *to strive or struggle*.

The minimum sequence constituting an aspectual verb thus consists of an underlying form, which may belong to any word-class (excepting only the subclass of auxiliary verbs), together with an aspect-marker suffix of class 200; and this may be followed by a person-marker suffix of class 100, with or without an intervening relator of class 110. No relator is ever employed between aorist -tI and a following person-marker suffix. Between progressive -ią or imperfective -ba in its future-tense function, the relator -dI (111) always occurs before markers of first or second person; but no relator is employed before third-person markers in this position, except in ceremonial or archaizing speech, in which -lI ∼ -r (112) is inserted. Between durative -gi or perfective -HA and a marker of first or second person, the relator -dI always occurs, as does -lI ∼ -r (the latter variant only and always before 104) before a marker of third person singular; but none is found in these positions before the marker of third person plural. The subordinate function of the imperfective verb is twofold: it may serve as a relative verb, as in máma funá ligía taríhubai *it can't be he whom-she-saw*; or be non-relative, as in láhuduháią nége rį le taríhubalí *he (was) pounding quotative rice when she-saw-him;* the hyphenated English words translating the imperfective verb of each form. In the relative construction, no relator precedes the person-marker suffix, which can only be one of the third person, since it refers to an antecedent; but in the non-relative construction of the imperfective verb in its subordinate function the relator -ll ∼ -r occurs before suffixed markers of all persons; (see now second paragraph under **3.2** above).

7.2. The auxiliary verbs supplement those of the other two subclasses; and appear to offer, in some cases, alternative constructions that are synonymous with aspectual verbs. Thus aríha bá and aríhahadíbu both mean *thou hast seen*, while aríha nubádibu and naríhubadíbu are both translatable by *I'll see thee*. Some informants claim that the phrasal member of the last pair is what might be called concessive; or, as they themselves put it 'aríha nubádibu means that it's up to you, naríhubadíbu means that it's up to me;' others deny that there is any difference in meaning between the two forms. If, as has been suggested under **5** above, the person-marker suffix is to be regarded as subject rather than goal in imperfective and progressive no less than in the other aspectual verbs, then it is at least plausible to suppose that 'see I-will-thee' might bear a connotation different from that of 'thou'lt-be-my-seeing'. Certainly, whenever what we should regard as a pronominal goal is to be expressed in the aorist, the perfective, or the durative aspect, the phrasal construction with an auxiliary verb must be employed, as in aríha lumútu *he saw her* (*see he-did-her*), aríha láru *he has seen her* (*see he-has-her*), aríha lágiru *he still sees her* (*see he-still-does-her*). In this division of labour, all the lexical work is done by the complement, and all the grammatical work by the auxiliary.

However, some of these verbs also occur—

although very sparsely so far as I could determine or my texts indicate—without a complement and with an absolute meaning of their own. So, for example, 'kátaią bagóburigubáią' lúba búni *'who-are-they who-are-thy-parents' he-will-say to-thee*, with imperfective lúba *he will say*; bá lų *speak (say, tell) to-him*, with second person singular imperative bá *say*; má-buga nįą bų *didn't I tell (it) to thee*, with progressive nįą *I say*. Most frequently employed with this independent function is the progressive theme -ią, as in tęgi nią-bų *thanks I-say to-thee—thank you*, (mábuiga) hąią (sų mútu bų) *(greetings) they-say (everybody to thee)*, káią bų *who-says (so) to-thee—who told thee?* —with the interrogative prefix kA (8); this form being quite distinct from the locator kátaią *who are they*, in which -ią is a different morpheme, the suffixed marker of third person plural. In all these cases the lexical meaning of the themes is translatable by English *say, tell*, or *speak*.

The imperfective auxiliary verb, like its aspectual counterpart, has both future-tense and subordinate functions. An example of the former has been seen above. But when it follows a non-verbal complement, it may itself have to be translated as a substantive verb *be* or *do*, as in ída uabá-sa lúma sábų, numáda *how shall we be (off)*—or, *how shall we do—for soap, my friend?* This is also true of other auxiliary verbs. Incidentally, the particle ída is to be translated as *how* only when it is followed by an auxiliary verb; elsewhere it means *when* (cf. ída me *when future*, ída búga *when past*, and the aspectual verb ídaba *when will be*).

The subordinate function of the imperfective auxiliary is analogous to that of the imperfective aspectual verb; so, in ligía ibídię tubái nų *it-is-therefore that-she-is unknown to-me*, tubái *that-she-is* is a relative verb whose final morpheme, the person-marker suffix -i (103), refers to the locator ligía *it-is-therefore* as antecedent, and whose complement is the particle ibídię *unknown*; but in ká gía uágu madógǫ bubáli léa *why don't / didn't you do this* (more literally, *what be about without-doing thou-be-it this*), the verb is subordinated by its privative complement madógǫ *without doing* (contrast positive: ká gía uágu badógai léa *why do you do this*, in which the finite indefinite verb badógai *thou-do-it* replaces the phrase with imperfective auxiliary); while its final morpheme, -i (103), functions as goal in cross-reference to the locator léa *this*.

An aspectual verb in the aorist aspect is replaced by a phrase with an aorist auxiliary in -umútI whenever a pronominal goal is to be expressed, as in subúse bumútina *thou knowest me*, resíbi numútu bigáradą *I received thy letter (receive I-did-f.-it thy-letter)*. It is also employed in some cases where there is not and cannot be any goal, as in sará lumúti *he got up (arose)*, įéį lumúti badágara *wherever it be you land up* įéį lumúti badáirau *wherever it-be you find her*, (with which contrast relative įéį iubái nerédera *there where-it-be-that I stay*, N. lįą líri *N is its name*—i.e. *the place where I stay is called N*).

The meaning of the progressive auxiliary (so far as translation is concerned) varies considerably with environment. When it includes a person-marker suffix (preceded by 111 in the case of first or second person, by 112 in that of third person), it functions as a sort of admonitive, as in aríha niądibu *mind lest I see thee*, aríha liáru *mind lest he see her*. Without a person-marker suffix, it usually denotes contemporary state, condition, or activity, as in ítara liá-ti *it is thus*, or *this is how it happens*; iú niá-ti béiabu *I am/was sitting by the landing-place*; ída biá-gi *how art thou?* aríagu nįą *I'm just watching*; aríha nįą *I've just seen*; fáia tįą *she's under way—she's just sailed*. But it may also be employed to indicate an aptitude, as in áfara nįą garáuau *I (know how to) beat (the drum)*.

The auxiliary theme -a- ~ -uma- serves both the perfective aspect and the conjunctive; combines with the durative aspect-marker, -gi (204), to constitute the theme of

the durative auxiliary verb, -agi- ~ -umagi-; and combines with the nominalizing suffix -NE (211) to form the theme of the auxiliary verbal noun, -aNE- ~ -umaNE-. The former variants combine with singular person-marker prefixes (1–4), the latter variants with plural prefixes (5–7). The conjunctive has imperative and subjunctive functions, distinguished only by environment and by tone. The morpheme -NE appears in the auxiliary verbal noun as -ni or -ne (free variation) before markers of first or second person, as -n before those of third person (and, optionally, before those of first and second persons plural), and as V̨ (nasalization of stem-final vowel) when word-final.

The perfective and conjunctive auxiliaries are distinguished by environment, by tone, and, when a person-marker suffix is included, by the absence of any intervening relator in the conjunctive. In both perfective and durative auxiliaries, the relator -dI (111) precedes suffixed markers of first and second persons, -lI ~ -r (112) precedes those of third person singular, but none occurs before that of third person plural. No relator is employed with the auxiliary verbal noun. Examples: aríha náru *I've seen her* and aríha uamáru *we've seen her* (perfective); aríha nágiru *I still see her* and aríha uamágiru *we still see her* (durative); aríha náų *I must see her*, aríha báų *look at her* (*2nd sig.*), aríha uamáų *let us see her*, (imperative), or, in a subjunctive clause, *that I may see her*, etc.; (subúseti bų́) aríhi nánebu (*it is known to thee*) *my seeing thee* (*you know that I saw you*), aríhi nánų *my seeing her*, aríhi uamánų *our seeing her*, (verbal noun).

The conjunctive auxiliary is employed with subjunctive function in clauses expressing purpose (as above), or result (as in tahámaca nuágu bí tána *she pounced upon me so that she cut me*), or after a complement ending in -gi (as in cibági hamáų-ti *they washed her nevertheless*). Moreover, the prohibitive construction differs from the negative (or privative) subjunctive or any other negative verb-phrase having an indefinite verb as complement of its positive form in that it retains the active or a-form in the negative as in the positive complement, whereas, in all other negative verb-phrases the privative participle is employed as complement. So, merę́ga bái *don't tell it* can be only prohibitive, as opposed to (lų́) merę́gu bái (*that*) *thou shouldst not tell it*, merę́gu lumúti *he did not tell it*, etc.

What might be called the andative auxiliary verb, -iábu *going to*, is exceptional in that it cannot take a person-marker suffix; so, ágaua niábu *I'm going to bathe*, dína niábu *I'm going to embark*, áfuliha uaiábu *we're going to swim*, áuca biábu áiga *thou'rt going to try to eat*. However, it is rarely employed today in a plain statement of fact or intention. In view of which, 'voluntative' might be a better label for this modal construction, and *I will* (contrasting with *I shall*) *try to eat* be a better translation of the last example. I have also heard: ló liábu *let him stay away* (*for all I care*); the particle lo (whence the verb áloda *to linger*) having such meanings as *long time*, *protracted* (*absence or presence*), *staying away*, *no longer there*.

There remains only the conditional hamúga, which is exceptional in several respects. It is the only auxiliary verb that can—and usually does—occur in unprefixed form, although it occasionally takes person-marker suffixes, prefixes, or both. Like the conjunctive, its functions are modal rather than aspectual; but, unlike the former, it is most frequently employed in conjunction with an aspectual verb or with another auxiliary. So, in conjunction with the aorist: áhaį hamúga tia erę́gatibu tų́ *if thou hadst told it to her*, buíduti hamúga *it would be good*, áfara numútibu hamúga áhaį (hamúga) berę́ga tų núgucu *I'd beat thee if thou told it to my mother*, busę́tina hamúgai *I would want it*; in conjunction with the perfective: áburigahádina hamúga bináro áhaį nídi hamúga búma *I'd have arrived long ago had I gone with thee*, áfara nádibu hamúga áhaį . . *I'd have beaten thee if* . .; in conjunction

with aorist and perfective: áhaį hamúga gebégidinátina, alúgurahádina hamúga bú *if I had merchandise, I would have sold to thee*; in conjunction with aorist and progressive: áhaią hamúga háutibu, beuérahaią hamúga *if thou hadst eaten them, thou'd be vomiting*; and with non-aspectual complement: máma hamúga súądą lú gagúrasųbádina lá lubá *it's not all the time that I would have patience with him*, háu nahamúgai *I would eat it*.

The conditional auxiliary enters into a compound with the auxiliary stem -a- ~ -uma- to form a desiderative, in which combination it loses its first syllable; so, háu uamámugabu *would that we might eat thee*, nagáįdagúba, dógua uamámugaia *I'll fight, may we come to blows again*; in which the desiderative compound auxiliary takes the person-marker prefix uA- (5) and the suffixes, -bu (102) in the first example, repetitive -ia (351) in the second.

The conditional hamúga also occurs after a form, káimą, which may be called dubitive, as in aríha náru, káimą hamúga táueba *I've seen her, (it seems) as though she might die*. This káimą, which is not to be confused with the homonymous first-person plural imperative verb, *let us* or *let us go*, must today be considered as a particle. Historically, it comes from Breton's 'acai háman' *if it be, if he say*, but the subjunctive verb 'háman' *be or say* has disappeared without other trace in the modern language.

The non-aspectual character of hamúga, in contradistinction to aorist, perfective, progressive, etc., is clear from its employment in conjunction with these several aspects; but it differs from the tense markers in its ability to take pronominal affixes.

Finally, it should be noted that aspects do not combine in aspectual verbs as does hamúga in the desiderative compound. A verb such as áfaraháiahadína (garáuaų) *I used to beat (the drum)*, which I at first interpreted as a 'perfective-progressive', is simply a perfective verb, whose base, the indefinite verb áfaraháia *to beat tensive repetitive*, contains the derivational suffixes tensive -ha (301) and repetitive -ia (351). The latter morpheme, which in other environments means *again*, when it occurs in a perfective verb has the sense of *previously*, or, when the perfective verb is privative, (*not*) *before*; so also, for example, agábahaiahadína buágu *I've already heard about thee*.

8. Alternation, in so far as it affects major morphemes in general, is largely irregular and partly dialectal, stylistic, or free. Variants may show loss (l) or positional change (p) of stress (S), nasalization (N), vowel (V), or consonant (C), assimilatory change (a) of either of the last two, or a combination of any of these; and it may sometimes be convenient, here or in later sections, to indicate such types of variation by the letters shown in parentheses. By far the commonest type of alternation is that which affects stress and (or) nasalization.

When they combine with the verbalizing prefix A- (11), most monosyllabic and many disyllabic bases lose their stress, which is taken by the prefix; compare só *ardent*, sóti *it is burning hot or stinging*, with ásora *to roast* and ásoha *to sting*; sé *pouring out*, as in sé-bai *pour it out*, with ésera *to pour out*; gudá *burnt or burning*, as in gudáti *it is burnt* or gudá-bai *burn it*, with águda *to burn*; fáia *travelling (by water)*, as in fáia tįą *she just sailed—she's under way*, with áfaiara *to travel (by water)* and áfaiaha *to navigate (a boat)*. However, this is not a general rule, as may be seen by a comparison of có-bai *fling it* with acóra *to fling*; dáo-bai *cover it*, or (of clothes) *put it on*, with adáora *to cover up* or *to put on (clothes)*; cúba *jumped* with acúbara *to jump*.

Similarly, a base whose free form has stress on the second syllable usually shifts it, on combining with A-, so as to remain on the second syllable of the verb so formed; so, from the noun fagáiu *paddle* comes the verb afágaiuha *to paddle*, and from the particle gumúla *smoky* comes the verb agúmulaha *to smoke*. Here again there are

many exceptions, as in agiuériha *to hollow out* (*as a dugout canoe*), with the underlying noun iuéri *thing so hollowed out*, and egeléca *to lock*, with the underlying borrowed noun gelę *key* (Fr. clef), eleskuéleha *to school*, with the underlying borrowed noun leskuéla *school* (Sp. escuela).

Nasalization may be lost or shifted, with or without concurrent change in the fall of stress, as in áhara *to agree*, from ąhą *yes, agreed*; ásura *to finish*, from sų *every or all*; ʃuira *to whistle*, compared with uʃ-bai *whistle it*. Usually, nasalized vowel clusters containing /i/, /ị/ or /ę/ are more resistant, as in the case of áhjura *to rest*, from hjų *resting* as in hjų-ba *rest* (*2nd sg. imperative*).

Usually, -V + V- > -V- as in átiri *how much or how many* + -ią (202) + -nų (107) = átirianų (tiráhǫią láu Gibétu) *how many are they* (*her children by Gilbert*)*?* or máigi *without eating* + -gi (204) + -ią (107) = máigigʃą (negé-buga) *they hadn't yet eaten quotative*. Vowel clusters are frequently reduced when they lose stress, as in amáreda *to get married*, from the borrowed particle maríe *married* (Fr. marié); abúleda(gua) *to forget*, from the borrowed particle bulíe *forgotten* (Fr. oublié); agáiʃda *to get angry*, from the denominal particle gáią *angry* (gA- + -ią, absolute ʃąo *anger*). In abúsęra ~ abúsera *to want*, from borrowed busuę *want* (Fr. besoin), the stress-shift is accompanied by loss of one vowel and, with many speakers at least, denasalization of the other. In many other cases, however, such reduction never occurs; so, from sué *spitting* as in sué-ba *spit* (*2nd sg. imperative*) comes ásuera *to spit*. As with many other languages, there is a good deal of evidence indicating that the more frequently a word is used, the more apt it is to be shortened, (see now what is said of erę́ga *to say or to tell* below).

Vowel assimilation of the type seen in leskuéla *school* > eleskuéleha *to school* is common but apparently optional; so also euéra *to vomit* usually becomes in its tensive form euéreha. On the other hand, the base-final vowel of -naro- *true*, as in inároti *it is true*, inároni *truth*, binárǫ *thy truth*—that is, *thou'rt right, thou'rt telling the truth*—is assimilated to that of the suffix in anárada *to come true, to be realized*. Both vowel reduction and vowel assimilation are seen in erę́ga *to say or to tell*, whose archaizing, ceremonial form is arʃaga, and with which compare arʃaha *to tell on or about*, arʃagua *to whisper*,—all of them primary words. Alternation in the form of such verb-bases as -cilo- ~ -colo- *arrive* and -dimure- ~ -dumure- *talk* is rapidly disappearing in favour of the assimilating variants, which are, almost without exception, employed by the younger generation. This process must have been going on for a long time, to judge by such occasional evidence of it in Breton's seventeenth-century dictionaries as 'iboutípfeti nóne' ~ 'ouboutípfeti none' *je l'oublie*, with which compare modern ibídięti nų́ *I don't know it/him*.

In certain cases the consonants /n r g h/ may be lost. In that of ásiąra *to be unable*, from saniá *impossible*, shift of stress appears to have been the conditioning factor; but today the back-formation siá has replaced saniá in the colloquial speech of many (but not all) districts. The particles ių́ *sitting* and niurú *seated* (cf. ių́ niá-ti *I am/was sitting*, but niurú-ba *be seated*), which form the nucleus of the verb meaning *to sit* (see below), show loss of the nasal consonant with compensatory nasalization of the stressed vowel. This type of variation is also found in a few other forms. Dissimilatory loss of /r/ takes place in a number of verb-bases when they combine with the verbalizing suffix -ra (231a); so auáira *to mount* from uarí *mounted*, but, with the same base, auáriha *to creep*; aráira *to descend* from rarí *descended*; adáira *to find* from darí *found* (also *until* or *as far as*), but, with the same base, adáriha *to woo*; adáura *to close* from darú *closed*; and, with concurrent loss of vowel, adára *to open* from dará *open*, (with which contrast ádara *to shove* from dá *shoved*); colloquial aniúra (ceremonial aniú-

rura) *to sit* from niurú *seated*. In many forms, however, this does not occur; so, asúfurira *to suffer* from borrowed súfuri *suffered* (Fr. souffrir). Analogously, adíga *to catch (fish)*, ácuga *to chop (wood)*, áluga *to seek out (thing or person whose whereabouts is known)*, and aríha *to see or to look at*, lose their /g/ or /h/ when either of the derivational suffixes, tensive -ha (301) or stato-reflexive -gua (321), is added; as in adíaha *to fish*—that is, *to try to catch (fish)*, adíagua *to dish up (food)*; ácuaha *to go (seeking wood) to chop*, ácuagua *to chop up (into lengths)*; áluaha *to look for (thing or person whose whereabouts is unknown)*, áluagua *to look out for oneself (to make oneself at home)*; aríaha *to peep or to peer*, aríagua *to watch*. (Compare also acíga *to dig* with áciaha *to go digging*, both with underlying ciga as in cíga humá *dig ye (2nd pl. imperative)*; and íbiha *to cut* with ibíagua *to sever*, which may or may not have the same base—bí *cutting or cut*, but bía *two*). This type of variation is probably unproductive today, as appears from the presumably recent formation abúgaha *to drive (a vehicle)*, whose stem is abúga *to drive off or away*; in fact, I remember no instances of it other than those just cited.

As has been stated in section **4**, which deals with alternation in minor morphemes, the perfective aspect marker -HA (203) is often reduced to -a or to zero, as in uáiaru *she is old* (contrast uaiáru *love-charm*), lamádina *I'm hungry*. Usually this does not affect the base; but in one instance at least this does happen in colloquial speech. So the particle iódo *going or gone* + -HA yields iodá in some environments, iódoha in others, with the meaning *has/have gone*.

The verb aráoda *to beget or to breed*, like the possessed singular nouns niráo *my child*, uaráo *our child*, etc., shows loss of /h/ in the base as compared to the absolute noun iráho *child or little one*, or to a plural possessed noun such as niráhǫią *my children*. No other instance of this kind of variation was observed.

The borrowed particle badíse *baptized* (Fr. baptisé) underlies the indefinite verbs abástera(gua) *to get baptized*, causative abásterágoda *to baptize*. Since the form 'abatisséracoua *se faire baptiser*' is recorded for the Dominican dialect of circa 1650, it seems clear that the /i/ was syncopated when stress shifted to the second syllable, and that metathesis took place because the cluster /ts/ did not occur in the dialect then spoken—any more than it does in that spoken today. Later, when the t/d opposition (nonexistent in the Dominican dialect) evolved, and the apical stop of the particle became voiced as in modern badíse, the contiguity of the sibilant inhibited this change from affecting the base of the verbs derived from it.

The verbs áibuga *to go or to walk* and acólora *to arrive* (rather than *to come*) appear to be defective. For the imperative form of the verb meaning *go*, see the last paragraph under **6** above; for the imperative of *come* the women (and many men) use a locator whose theme is higá-, the men an invariable particle áho. Other forms meaning *come* and *go* are nouns (-iábi *coming*, -ídi or -údi *going*), particles (iǫ́bui ∼ iǫ́bi *coming*, iódo *going*), or aspectual verbs derived from these.

Suppletion of a different and peculiar type occurs with the verbs áiga *to eat* and áta *to drink*. These verbs are in no way defective, but their use in certain aspects has acquired undesirable connotations, namely, in the case of áiga, *gluttonize or take food on the sly*, and in that of áta, *drink (an alcoholic beverage) to excess*. This does not apply to the indefinite verb or to the homophonous synthetic imperative; nor does it apply to aspectual verbs containing these bases in the progressive or imperfective aspect, or to an aorist verb whose base is an habilitative adjective derived from one of these verbs by an affix of class 20 together with the suffix -DI (214). In all other cases, whether as base of an aspectual verb or as complement of an auxiliary verb, áiga and áta are replaced by the particles háu *eat*,

gurá *drink*. So, for example, náiga *I eat* (indefinite), náigią *I'm eating* (progressive), náiguba *I'll eat* (imperfective), báiga núma *eat with me* (synthetic imperative), máigattina lú *I don't (or can't) eat it*; but haugídina *I still eat*, háuhadina *I've eaten*, háutina *I ate*, háu lumúti *he ate it*, háu-ba *eat (2nd sg. imperative)*; and analogously with áta and gurá *drink*.

9. It would have been convenient—and not too far wrong—to define the noun as any word not a verb which is or may be inflected by a person-marker prefix (1–7); for morphemic words such as aréba *cassava-bread* and múna *house*, which do not take any prefix, have clearly suppletive alternants, -ubúte and -úbą, which occur only with one, as in uabúte *our cassava-bread* and túbą *her house*. But this is not true of a few unprefixable forms like árabu *woods, bush or country*, áudo *town*, barána *sea*, guríara *dugout canoe*, ubéu *clouds or sky*; although informants sometimes offer as possessed 'equivalents' nouns such as ticári *her plantation*, lagáira *his birth-place*, uagúne *our boat*, which have absolute forms of their own, and are not true synonyms,—much less suppletive alternants. Moreover, when pressed, a native speaker may produce such an *ad hoc* creation as uabárana *our sea*, just as an English speaker might offer 'scissor' if pressed for the singular of *scissors*; but both will usually admit that they never heard these forms employed, nor felt the need of them. It therefore seems better to retain the somewhat inelegant, threefold definition of this word-class given under section **2**; and to say that such unprefixable words are nouns because they combine with nominal suffixes, as in árabugíę *from (the) bush*, áudobu *at town*, baránaha *at sea*, guríararugu *in (the) dugout canoe*, ubéuagu *upon (the) clouds*.

The only useful morphological differentiation that can be made among words of this class concerns the type of contrast that exists between their absolute and their possessed forms, or the absence of such contrast. As was shown under section **3.2**, either, neither, or—rarely—both may be marked as such; so tibírą ~ tibírani *her sail*, tufáifate *her pipe*, tebéneri *her door* are marked as compared with absolute bíra *sail*, fáifa *pipe*, béna *door*; absolute hítao *blood* and anágani *back* are marked as compared with possessed líta *his blood* and lanága *his back*; absolute and possessed forms in ugúdi *foot/feet* and tugúdi *her foot/feet* differ only in the absence or the presence of a person-marker prefix; and both absolute haráua *ax* and possessed naráuą *my ax* are marked as such, the former by the prefix h- (31), the latter by the superfix V̨ (nasalization of stem-final vowel), a variant of the suffix -NE (211).

With one apparent exception (see under **10** below), all nouns whose possessed forms contain a suffixial morpheme absent from the absolute forms of the same nouns denote things or beings that are treated as 'alienable'; but those whose possessed forms are unmarked in this way may denote alienable or inalienable things or beings, irrespective of whether their absolute forms are or are not marked as such by affixation or otherwise. So that naráuą *my ax* from haráua *ax*, nubúgiote *my God* from búgiu *God*, niúrite *my tobacco* from iúri *tobacco*, némari *my road* from óma *road* are 'alienable'; but nouns with marked absolute and unmarked possessive forms may be either 'inalienable' like hítao *blood* and égei *shoulder*, or 'alienable' like hálao *seat (bench or chair)* and iuíei *dirt*, with possessed forms as in níta *my blood*, nége *my shoulder*, nála *my seat*, niuíe *my dirt*.

Occasionally, a noun may have both alienable and inalienable possessed forms; so įdanǫ *cross-beam* is possessable by a person as tįdanǫte *her cross-beam*, or, more usually perhaps, as táni įdanǫ *hers* (or *her thing*, a noun) *cross-beam*; but spoken of as part of a building it is simply tįdanǫ múna *her-cross-beam house—the cross-beam(s) of the house*. What are probably polysememes are distinguished in the possessed forms of

égei *grater, shoulder*, as in tégite *her grater*, but tége *her shoulder*; while homonyms such as áti *Cayenne pepper* (*Capsicum*) and áti *brother* may be distinguished in their possessed forms as in tátite (or tátię) *her Cayenne pepper*, but táti *her brother*.

On the other hand, a noun may be treated as inherently inalienable. This is the case with fleue *blossom* and hį *fruit or offshoot*; so that tį *her fruit* and tíleue *her blossom* can refer only to their producer; while *de facto* possession of these things is expressed by words with borrowed stems: tufúrudą *her fruit*, from furúda *fruit* (Sp. fruta), and tufúlurię *her flower(s)*, from fulúri *flower(s)* (Sp. flor).

Possession of food and drink regarded as a portion meant for personal consumption is distinguished from ownership of such as may be disposed of by sale or gift. In a few cases a different word is employed; núį *my share of meat* (*flesh or fish*) refers to what I am going to eat, while what I have caught but may be willing to part with would be called níliru *my game* or núdute *my fish*. In other cases, the absolute form of the noun naming a product preceded by a possessed form of that for *food* or of that for *drink* is the construction employed to denote 'for personal consumption'; so náigą durúdia *my-food* (*of*) *unleavened bread* and nunįę bínu *my-drink* (*of*) *rum*, in contradistinction to nudúrudią *my unleavened bread* and nibínų *my rum—mine*, that is to say, *to do what I will with*. Ownership of any live animal is expressed by a possessed form of ilógoni *living property* followed by the name of its species, as in nilógǫ áųli *my dog*, lilógǫ gabáiu *his horse*, with native áųli *dog* and borrowed gabáiu *horse* (Sp. caballo).

The vast majority of nouns may be referred to in the context by third-person pronominal elements (person-marker affixes and the corresponding stems of the pronominal locators, li-, tu-, and ha-), which distinguish, in the singular, masculine and feminine genders; so ɟeį líra *that urine* is distinguished as masculine from ɟeį túra *that louse*, which is feminine; háu-bai (aréba lira) *eat m.-it* (*that cassava-bread*), but háu-bąu (féį túra) *eat f.-it* (*that bread*); lídą tarígai *in-m.-it her-ear* (*in her ear*), but tídą guríara *in-f.-it dugout-canoe* (*in the dugout canoe*). This purely syntactic criterion allows us to set apart a small subclass of morphological nouns, which, like uágu *upon or about*, are never referred to by pronominal elements in the context, and are therefore without gender. For the most part they have bound themes and stems, like -ídą *in*, -úma *accompanied by, together with;* and their functions are therefore adverbial rather than prepositional. They may or may not be followed by a conventional or syntactic noun; and are commutable, in most environments, with those of the latter type. So, compare tídą guríara *her-in dugout-canoe* with talána guríara *her-thwart(s) dugout-canoe—the thwarts of the canoe*, ká uágu *what about—why*, and agąbahaiahádina buágu *I've already heard about thee* with ká bíri *what* (*is*) *thy name*, and agąbahaiahádina bumálali *I've already heard thy voice*. However, in such a phrase as náibuga lúma *I'm going with him*, lúma *him-with* cannot be replaced by related lúmari *his wife* (literally *his consort*) without at the same time changing the person-marker prefix of the preceding word from first (n-) to third singular feminine (t-),—táibuga lúmari *she-go his-consort* (*his wife is going*).

10. The suffixes -NE (211), -lE (212), -rE (213), and -te (324) occur in the possessed forms of certain nouns, in attributive and privative adjectives derived from them by prefixes of class 20 (see under section **3.2**), and in verbs derived from such possessed nouns or from such adjectives. The second of these, -lE, apparently occurs with this function only in archaizing or ceremonial speech, and need be considered no further here. Of the remainder, -rE is by far the rarest; and is regularly employed today with very few stems, the commonest among which are: béna *door* (tebéneri *her door*), dóbu *rock or stone* (tidóburi *her stone*),

dúna *water or river* (nidúnari *my river*), óma *road* (némeri ~ némari *my road*), uéiu *sun or day* (ueuéiuri *our day*). It has also been recorded in the possessed forms of iagúma *punt-pole*, orému *song*, uagábu *post*, uáigu *breech-clout, sanitary or baby's napkin*, uéue *wood, stick or tree*, and uóbu *mountain*, but is not employed regularly with any of these latter. In petrified form, it occurs in the bound theme -áuori *matchet* (náuori *my matchet*, káuori *whose matchet*, etc.), and perhaps in some other instances. It should be noticed that this suffix is never employed in this function with stems of other than Kalina ancestry. Words containing it may add derivational suffixes, as in tidábuiabárirugú *in her ancestor-cult house*, from tidábuiabári *her ancestor-cult house*, from dabúiaba *ancestor-cult house*, or enter into a compound, as in tebéneriébu *her threshold*, from bénebu *threshold*, whose members are béna *door* and ébu *support*.

The suffix -te has a much wider distribution, and occurs with a large number of loanwords, as in: nábite *my coat* (ábi *coat*, Fr. habit), bagúsete *thy needle* (agúsa *needle*, Sp. aguja), larąsute *his orange* (arąsu *orange*, Fr. orange), tarúfute *her harpoon* (arúfų *harpoon*, Fr. harpon), uáųgurute *our anchor* (áųguru *anchor*, Sp. ancora), hubáte *your stockings* (bą *stockings*, Fr. bas), habúgiote *their God* (búgiu *God*, Fr. bon Dieu), nufáifate *my pipe* (fáifa *pipe*, Eng. pipe), bigąte *thy gloves* (gą *gloves*, Fr. gants), lúute *his hoe* (hu *hoe*, Fr. houe), tesúbarate *her matchet* (isúbara *matchet*, Sp. espada), uarásuete *our razor* (rásue *razor*, Fr. rasoir), hisábute *your soap* (sábų *soap*, Sp. jabón), hasálute *their salt* (sálu *salt*, Sp. sal), nisíreste *my scissors* (sírasi *scissors*, Sp. tijeras); as well as in words of native ancestry such as: nátite *my Cayenne pepper* (*Capsicum, áti Cayenne pepper*), beiérite *thy man* (eiéri *man*), lisúbusete *his mirror*) (isúbusei ~ isíbusei *mirror*), tiúrite *her tobacco* (iúri *tobacco*), uabáuhute *our island* (ubáuhu *island*), húdute *your fish* (údu, údurao ~ údorao *fish*). As in the case of -rE, forms containing -te combine with derivational or conversional suffixes; so, for example, uabáuhuteúagu *upon our island* (with 334), maiúritebái *he will be without tobacco* (denominal maiúrite *without tobacco*, verbalized by 201 and marked for person by 103). The noun iáu *uncle* (*mother's brother or father's sister's husband*), or *elder male acquaintance of no known kin*, is unique in being the only kinship term to take a suffixed marker of possession or subordination, and that a complex of -rE + -te, which occurs nowhere else; so, niáurite *my uncle*.

As a marker of possession or subordination, the suffix -NE, when word-final, occurs as -ni with stems ending in a nasalized vowel (whose nasalization is absorbed by its addition), as -ę with some—but not all—stems ending in -Ci, and elsewhere as the superfix Ṽ (nasalization of stem-final vowel) —except that -ni may be retained in ceremonial or archaizing speech. When it is followed by a suffix or by the second member of a compound beginning in a vowel, -NE occurs as -n in this function. Examples: niríni *my rice* and nubáduni *my walking-stick*, from borrowed rį *rice* (Fr. riz) and bádų *walking-stick* (Fr. bâton); bátię (alternatively to bátite) *thy Cayenne pepper* and bufúlurię *thy flower(s)*, from áti *Cayenne pepper* and borrowed fulúri *flower(s)*; laráuą *his ax* and tibírą ~ tibírani *her sail*, from haráua *ax* and borrowed bíra *sail* (Sp. vela); tibíranuágu *upon her sail* and tibíranebú *her mast*, both containing the bound form tibíran- *her sail*, to which, in the former example, the suffix -uagu *upon* (334, as distinct from the noun uágu *upon or about*) is added, and with which, in the latter, the noun ébu *support* is compounded; (contrast absolute bírebu *mast*, and compare with compound bénebu *threshold*, tebéneriébu *her threshold*).

-NE probably has a wider distribution with this function than does -te, which has no other; and like the latter morpheme it combines with both native and borrowed stems. However, the very slight phonetic

substance of its commonest variant, the superfix V̨, leads many speakers to omit it altogether when—as is often the case—the vowel that should bear it is unstressed and devoiced; so that recorded forms show such sporadic variation as in tisábadų ~ tisábadu *her shoes*, from borrowed sabádu *shoes* (Sp. zapato); bubágǫ ~ bubágo *thy ring*, from borrowed bágo *ring* (Fr. bague); nubúnidį ~ nubúnidi *my hat*, from borrowed bunídi *hat* (Sp. bonete); bigáradą ~ bigárada *thy letter*, from borrowed gárada *letter* (Sp. carta); hubáligį ~ hubáligi *your ashes*, from (native) balígi *ashes*; núį ~ núi *my (portion of) meat*, from úi *(portion of) meat*. Only the testimony of native informants has led me to recognize such variation as real (rather than as arising from faulty hearing on my part); but once recognized as free (or, at the most, as belonging to different varieties of the same dialect), it becomes impossible to set up a zero allomorph of -NE as a marker of subordination—just as was found to be the case when its function as a nominalizer was considered under **3.2**.

11.1. In direct morphological opposition to the foregoing are those nouns having marked absolute and unmarked dependent forms; and in particular such as appear to employ the suffix -NE in this contrary function. When we compare possessed lamídą *its middle (middle of it)* and absolute amídani *middle*, from Fr. mitan, en mitan, with possessed lubáduni *his walking-stick* and absolute bádų *walking-stick*, from Fr. bâton, it is far from clear why -ni should mark one form's dependence, but the other's independence. Yet the nasalized vowels in -amídą and bádų can hardly contain a variant of the morpheme -NE if, as we presume, they were taken over from the French models. Other instances in which -NE appears to function as a marker of the absolute noun are few; those in my data include only: anágani, -anága ~ -anágą, *back;* ilógoni, -ilógo ~ -ilógǫ, *living property* (see next to last paragraph under **9** above); inároni, -ináro ~ -inárǫ, *truth*; fų́ieni, -ufų́ie ~ -ufų́ię, *wrist*, (borrowed from Fr. poignet); amúleię ~ amúleę, -amúlę, *younger brother*, (cf. borrowed fulúri, -ufúlurię, *flower*); umégeni, -umége ~ -umégę, -umégegu (collective), *necessary belongings*, whose bound base also occurs in the verb emégera *to need*.

However, a rarely heard particle ináro *true* (verbalized as in aorist inároti *it is true*, infinitive anárada *to come true*) shows commonly heard inároni ~ -inárǫ *truth* to contain the morpheme -NE—not as a marker of the absolute noun, but in its function as a nominalizer. Similarly, it is at least plausible to assume that umégeni ~ -umégę *necessary belongings* and emégera *to need* share a base -mege- which, though bound, is to be classed with the particles; and that the former contains the affixes I- (12) and -NE (211) in their nominalizing function. Moreover, the verbs anágua *to bear (a burden)* and anáha *to 'back'* (British Honduran English for *to carry a load on the back*) appear to contain the same base as is present in the name of an anatomical *back*, anágani ~ -anágą. On the other hand, the analogy between the examples cited above and such nominalized forms as ubuíduni ~ -ubuídų *goodness*, from the particle buídu *good*, or áigini ~ -áigį *meal*, -áigą *food*, from the verb áiga *to eat*, seems obvious; and it may be not too hazardous to conclude that the morpheme -NE, in the former as in the latter, functions as a nominalizer. The only serious objection to this interpretation is the fact that the hypothetical bases of ilógoni ~ -ilogǫ and amúleię ~ -amúlę cannot be isolated today. As for the borrowed roots, amídani ~ -amídą *middle ~ middle of ~ in the middle of* may well be the nominalized derivative of an unattested (and perhaps never used) particle whose model—like that of Dominican Creole ąmitą *in the middle*—was the French phrase en mitan; while the French noun poignet may well have been taken over as a particle, in the same way as was the French noun besoin, which has given Island Carib busuę́ *wanting* (particle), abúsęra *to want* (verb), and abúsęruni *want* (verbal noun).

11.2. The suffix -i ~ -o ~ -u (359) occurs only as word-final in the absolute forms of most nouns ending (without it) in /e/ or /a/, and whose stems begin with a vowel. As stated under **4** above, the variant -i appears after final /e/ of the complete stem (including all other derivational suffixes), -o after stem-final /a/, while the occurrence of the variant -u is rare and not, apparently, predictable. Examples: arónei *captain (of a boat)*, laróne *his captain*; arónao *arm or wing*, laróna *his arm*; arórei *saliva*, laróre *his saliva*; édei *bottom*, léde *his bottom*; égei *shoulder*, lége *his shoulder*; érei *strength*, lére *his strength*; erébei *forehead*, lerébe *his forehead*; ęu *male genitals*, lę *his genitals*; iádao *thigh*, liáda *his thigh*; iáuao *reflexion, shadow, picture*, liáua *his picture*, etc.; idédei *uvula*, lidéde *his uvula*; ídiuma *moustache*, lídiuma *his moustache*; ílao *contents, meaning, or seed*, líla *its contents*; írao *juice*, líra *its juice*; iúmau *mouth*, liúma *his mouth*; ógolei *semen*, lógole *his semen*; ógorao *hammock*, lógora *his hammock*; úbarao *nails or claws*, lúbara *his nails*; ugúnei *boat*, lugúne *his boat*; úrao *skin, bark, or covering*, lúra *his skin*; úrunao *leg*, lúruna *his leg*. Unlike the markers of possession and subordination (-rE, -te, -NE), this absolute-marker suffix does not occur before another suffix or before the second member of a compound; but it does occur as word-final after a suffix or second member of a compound. So arónao *arm* + -rugu (333) equals arónarugu *arm-pit*, while ugúdi *foot* + -(i)na (222) equals ugúdinao *heel*, and arígai *ear* + ílao *contents* equals arigáilao *ear-ring*.

In some cases the absolute form of the noun contains the prefix h- (31)—as well as, or instead of the suffix 359. For example, hálao *seat (chair or bench)*, lála *his seat*; hibísao *predator (beast that preys on another)*, libísa *his predator (the one that preys on him)*; hítao *blood*, líta *his blood*; híbise *sifter*, tíbise *her sifter*; hífe *scrap(s)*, tífe *scrap(s) of f.-it*; hį *fruit of offshoot*, tį *her fruit*. Synchronically, therefore, h- (31) and -i ~ -o ~ -u (359) must be treated as separate morphemes. However, in Breton's seventeenth century record of the Dominican dialect, such forms as modern hálao and hítao are written 'álaheu' (phonemically álaho) and 'ítaheu' (phonemically ítaho), and their possessed forms 'lála' and 'líta', as today. This suffix -ho of the older dialect, which appears to correspond to nominal and nominalizing -hu of modern Lokono, must therefore have split into a discontinuous morpheme, h- .. -o, before the present stage was reached.[4]

11.3. A large—and, as we have seen, increasing—proportion of nouns in this language takes neither a suffix marking the dependent form nor yet one marking the absolute form, which then differ only by the prefix or prefixes contained in the former, or/and in the fall of stress. So, for example, the following nouns combine with the person-marker prefixes without other change: ábu *bone(s)*, ábulugú *crest, crown (of the head)*, ágoro *(woman's) daughter-in-law*, agóto *grandmother*, águ *eye(s)*, anígi *heart*, ári *tooth/teeth*, arígai *ear(s)*, áruguti *grandfather* áti *brother*, ibári *grandchild*, ibárimu *(man's) son-in-law*, ídi *(woman's) son-in-law*, ídiburi *hair*, ígatu *(woman's) sister-in-law*, igíbu *face*, ígiri *nose*, ímedamúru *father-in-law*, ímenodi *mother-in-law*, ítu *sister*, iúmulugú *interior of mouth, palate*, úgubu *body*, ugúdi *foot/feet*, úhabu *hand(s)*, umálali *voice*, urágai *belly*.

Nouns of this subclass whose absolute forms begin in a phonetic semivowel, which occurs in this position only in an unstressed syllable, shift the stress in their possessed forms so as to fall on the second element of the initial vowel-cluster, thus acquiring another syllable, as in nuárugumá *my star*, from uarúguma *star*; liámasiri *his god-child*, from iamásiri *god-child*; ká iámadi *whose basket*, from ká iamádi *what basket*. We must therefore conclude that shift of stress is either itself morphemic in such cases, or else

[4] What appears to be the older form of this suffix occurs in the word óhoho *starch (of manioc)*, which is, I was told, synonymous with the phrase tóho gą́į (literally *her-extract manioc*) and with more modern darára.

is 'conditioned' by the presence of a zero morph belonging to the prefix I- (12). The fact that nouns whose absolute forms begin in a consonant and have stress on their second syllable combine with this prefix in their dependent forms, and usually shift stress to the second syllable of the words so formed, supports this latter interpretation; so nigálasų *my trousers*, from borrowed galásų *trousers* (Fr. caleçon); ká isímisi *whose shirt*, lisímisi *his shirt*, from borrowed simísi *shirt* (Fr. chemise).

Apparently an exception to the above is the compound noun ìumáru *lip(s)*, whose members are iúmau *mouth* and áru *edge or border*, and in whose dependent forms stress remains unchanged, as in nìumáru *my lip(s)*. However, this is one of less than half a dozen forms, all compounds, in which it has been found necessary to mark secondary stress—necessary, that is to say, in order to indicate the usual pronunciation; but this seems inadequate justification for setting it up as phonemic, since not a single opposition involving two degrees of stress can be discovered.

11.31. Those that I have called 'adverbial nouns' have, for the most part, bound themes and bases, translatable by English prepositions, and showing—like the latter—a considerable degree of polysemy. This may be illustrated by the various senses of -ábu *behind* (*supporting, underlying, outdone by, in the rear of*), *with* (*carrying, possessed of*), in the following phrases (person-marker prefixes in cross-reference to a following noun are not translated): búmari tábu bímenodi *thy wife behind* (*backing up*) *thy mother-in-law*, legelęcuni béna lábu iráho léa *his locking the door behind* (*against*) *this lad*, goráua tábu tíu béderugu *tied with* (*held by*) *hair* (*of*) *thy anus*, ábą fáluma tábu tį *a coconut-tree with* (*bearing*) *its fruit*, ábą ugúnei hábu muládunų *a boat with* (*carrying*) *ladinos*, ábą lídi lábu numégegu *and he went off with* (*carrying*) *my belongings*, gųdątina tábu náuori *I'm happy with* (*in possession of*) *my matchet*, báiba lábu *go in the rear of it*, mígira bá lábu *don't let him defeat you* (lit. *don't leave off behind/under him*), náueba lábu *I'll die of/under it*. The others recorded in my data are: -árigi *after*; -áu *on, about* (*all round, in connexion with*), *with* (*by means or use of*); -ubádu *opposite*; -ubá(ra) *in front of, before, for, with* (*in regard to, concerning*); -ídą *in, among*; -ugúdu *for the sake of*; -íladi *like*; -úma *accompanied by, together with*; ónabu *low or down*; -úrugu *interior*; -urúgabu *close to/by*, (a compound of -úrugu with -ábu); -urúma *because of*; uágu *upon, about* (*concerning*); -uária ~ -uái *off or away from*; -úni ~ -ų́ *to or for*.

All except ónabu (which takes no prefix) combine with the person-marker prefixes, as in núma *with me*, búma *with thee*, lúma *with him*, túma *with her*, uáma *with us*, húma *with you*, háma *with them*; and some yield particles by combining with the prefixes of class 20, as in máma *without*, gáma *being with—having*. Most of them also combine with one or more of the suffixes -gua (321), -ų́ (341), and -gię (342), as in lábugua *by himself*, lábugię *beneath him*, lárigaų *to the back* (*backward*) *of him* or *back to it* (*earlier position or condition*), láugię *above him*, lubádugua *vis-á-vis with him*, lubárua *ahead of him*(*self*—reflexive), lubáragię *before* (*sooner than*) *it*, lubáraų *to the front of him—foreward*, lídagię *from in—out of it/him*, or *from among inanimate them* (in contrast to hádagię *from among animate them*), lídaų *into it*, lúmagię *from it/him* (*place or person*) *or since it* (*time*), lúmaų *up to* (*unto or until*) *it/him*, ónabugię *below*, uauáugua *upon or about ourselves*, luáigię *from off it*, or *by reason of it*, lúgua ~ lunígua *for or to himself/itself*. Also, attested only in combination with -gua (321), -abádonagua *between* (with a singular person marker for inanimate referents). Moreover, such 'adverbial' noun phrases as: turúgabu lúbą *her-close-by his-house* (*close by his house*), lúma túguci *him-with her-father* (*with her father*), luária taríhini *it-beyond her-seeing-him* (*further than she can see him—out of her sight*) are grammatically equivalent to 'ordinary' noun phrases such as: tebéneri lúbą

her-door his-house (*the door of his house*), lúmari túguci *his-consort her-father* (*her father's wife*), and lísebe taríhini *its-agreeableness her-seeing-him* (*her pleasure at seeing him*).

It seems possible that some of the adverbial noun-themes, for example, -ídą and -úrugu, may contain the prefix I- (12) in a petrified state; for the functional and formal resemblance of these two and of uágu and -úni ~ -ų́ to the nominal suffixes -da (325), -rugu (333), -uagu (334), and -ų (341) cannot be without significance. In fact, such a compound as anígurugú *chest*, with anígi *heart* and -úrugu *interior* as its members, is distinguishable from a secondary word such as ligílisirúgu *in church*, from borrowed ligílisi *church* (Fr. l'église), only by the substitution of /u/ for /i/ in the former; for also a derived word can have a specialized meaning, as in the case of larónarugú *his arm-pit*, from laróna *his arm*.

The line separating adverbial or positional nouns from those others that have pronominal reference and gender is blurred and unstable. Thus áru *edge or border*, referred to by masculine -i (103) in dódoti táru nógora *wet-is-he her-edge my-hammock* (*the edge of my hammock is wet*), is often employed with adverbial function, as in láru dúna *at the edge of the water/river*, láru óma *at the edge of the road*. Thus, in inúte ábą guríara láru láru *a canoe is coming right in shore*, the meaning *right in shore* is conveyed by repeated láru láru *at its edge* (*of*) *its edge*, l- *his/its* of the second láru referring to an unexpressed barána *sea* (which is masculine). Analogously lamídą, whose theme and stem is borrowed from Fr. en mitan, may mean, according to context, *its middle*, *in the middle of it*, or *in half*; while the noun anágo *out at sea or high sea* (in French, le large) requires no person-marker prefix; steering directions to paddlers in a canoe being given most often in the form of derived nouns like múarugu *landwards* (from múa *land or earth* with 333), anágorugu *seawards*. And when the suffix -gię (342) is added to such nouns as lanága *his back*, táuba *her side*, (or, of a house, *its wall-plate*), ligíbu *his face*, téde *her bottom*, the meaning is always changed from an anatomical to a positional one, as in lanágagię *at the back of him/it*, táubagię *beside her/it*, ligíbugię *facing him/it*, tédegię *behind her/it*. On the other hand, it is worth noting that árisi, the Dominican correspondent of -árigi *after* (see above), meant, according to Breton, 'reste, trace' as well as 'aprés'.

Such semantic fluctuation (polysemy) and change may well account for homophonous ábu *bone(s)* and -ábu *supporting, carrying, underlying, etc.*, both of Arawak ancestry; while resemblant ébu *support*, which is Cariban, must be regarded as unrelated to either were it not for historical evidence to the contrary. However, Breton's seventeenth century record shows that the Dominican dialect contained, in addition to these same three forms with the same meanings, a fourth, épu *bone(s)*, belonging to the men's speech of that period; and this too is Cariban. Certainly, mutual attraction may have resulted in some convergence; and it is notable that all modern Cariban languages seem to have only one series of stops. Yet the one-time presence in Kalina (Carib) of homophonous (or near homophonous) stems, épu *bone(s)* and épu (or ébu) *support*, analogous to an Arawak pair ábu *bone(s)*, -ábu *supporting, etc.*, could hardly be attributed to anything but borrowing or, more likely, to genetic relationship.

The extent to which actual polysemy is tolerated may be seen by comparing the phrases lagóburi óma *its-desuetude path* = *disused paths*, tagóburi múna *its-dilapidation house* = *the dilapidated house* with tagóburigu Huána *her-elders Juana* = *Juana's parents* (*mother and father*), which is by no means disrespectful; change of meaning being effected only by the addition of the collective suffix -gu (322). On the other hand, anícigu *wisdom* has been divorced from anígi *heart or mind* by dissimilation; although it clearly corresponds to Dominican anísiku *wisdom, good sense*, which is the collective derivative

of anísi *heart or mind*. It matters little, so far as formal synchronic description is concerned, whether one speaks of polysemy or of homonymy; but the foregoing discussion may help to validate the analysis, based on purely morphological criteria, of such 'prepositions' and 'adverbs' as real nouns.

11.4. Mention will be made here of a few forms that appear to be anomalous, and of some others whose classification is questionable.

The aspirate in hália ~ halía *where* and húia *rain* of both recent Dominican and modern Central American dialects of Island Carib may or may not be identifiable with the absolute-marker prefix h- (31; see now what is said of this morpheme under **11.2** above); for Breton gives both these words without it, as 'állia' and 'óya' respectively, although he shows initial /h/ elsewhere, as in 'háguê' *ant* (whose g he describes as a voiced velar spirant) and 'houa' *frog*, corresponding to modern háo and húa. Neither halia nor húia has a possessed form; the first I have classed as a noun because it combines with the suffixes -(i)na (222), -rugu (333), -uagu (334), -ų (341), and -gię (342), as in halíagię *whence*, and with the privative prefix mA- (22), as in máliaų *nowhither* (without the aspirate, as is normal in the case of 31); the second because it combines with two of these (333 and 342), and has pronominal reference and gender, as in húia líra *that rain*. If the latter once contained h- (31), it has probably become non-functional, since it is retained in the denominal verb áhuia *to pour down*, as in láhuia húia *rain is pouring down* and áhuia hítao tuáigię *blood poured from off it*.

The commonest terms designating different positions in time appear to be, for the most part, nouns; although the evidence is not always adequate for conclusive proof. When we compare absolute harúga *tomorrow* with possessed larúga *its morrow—the next day*, larúgani *its dawn—the dawn*, and with the verb arúgada *to dawn*, the first of these words appears to contain the prefix h- (31); while the third, which may be a stylistic variant of the second, almost certainly contains the suffix -NE (211). On the other hand, when we compare ihóro *weight*, lihóro *his/its weight* nominalized by the prefix I- (12) from the particle hóro *heavy*, with larúni *its light* (as in larúṇi háti *moonlight*), from harú *white or light*, it would appear that this harú is itself a morphological noun containing the prefix h- (31), and combining with the generalizing suffix -(u)ga (332) to form harúga *tomorrow* and its congeners. This interpretation is at least supported by the shape of urínauga *yesterday*, which I analyse as urí *black or dark* + -NE (211) + -(u)ga (332).

The bound base of the verb agúieda *to become evening, to grow dusk* occurs elsewhere, so far as I know, only in the nouns ugúie *today or now*, and gúiaų *evening*; (a possible relationship to the men's word guiáro *yesterday* is quite undemonstrable). In ugúie it is combined with the nominal and nominalizing prefix I- (12); but when it has the meaning *now* or *nowadays*, it is followed by one of the locators léa *m.-this* or tóa *f.-this* (the women making it masculine, the men feminine), and is usually reduced as in gué léa, or gué tóa (for a description of such alternation, see **12.3** below). In gúiaų it is combined with a suffix -ų, whose identification with 341, which has an NL distribution, would imply that these words contain a nominal stem rather than a nominalized base, since they cannot be classed as locators. This seems not unlikely when we compare the noun-phrase rábaų uéiu *afternoon* (uéiu *sun or day*) with the verb-phrase garába-baų *turn f.-it/her over*, or *overturn f.-it/her*; the former meaning, more literally, *the sun's turning to the other side*, while garába of the latter appears to be a denominal adjective containing the prefix gA- (21); (cf. also harába ganáli *earthquake*, garábali *wind*). As the affixes I- (12) and -ų (341) rarely combine with bound but isolatable major morphemes such as -guie- and -raba-, it may be supposed that these once were free; and it may be worth noting that

de Goeje lists Kalina koye, konye *afternoon* and Lokono raba *the other side*.

A few nominal themes and bases resemble -áuori *matchet* (see **10** above) in that they occur only in combination with a prefix of class 0, or with one of class 20. Such, according to my informants, are -úguci(li) *father* and -úgucu(ru) *mother*, whose parenthetical endings were heard and said to be employed only and always in ceremonial speech. Nor is an absolute form of either of these noun-themes recorded in the descriptions of the Dominican dialect (as made 300 years ago by Breton, and 50 years ago by Rat), in which -ukusili *father* and -ukusuru *mother* never occur without these same endings; so that hitherto there has been no justification for calling them Island Carib morphemes; and that despite their resemblance to the nominalizing (and nominal?) suffixes of modern Lokono, -li *masculine* and -ro *feminine-neuter*, as in ifili *big masculine one*, ifiro *big feminine-neuter one*, and perhaps petrified in uadili *man*, hiaro *woman*. However, Fr. John Stochl S.J., who taught Black Carib children in British Honduras, recorded úgucili *father* and úgucuru *mother* (unattested in my data as free forms), and tells me that the former is now well known, and employed—especially, though not exclusively—in reference to God. The resuscitation of these suffixes in the creation of two absolute nouns required by a particular stage in acculturation seems to be worth noting.

Finally, a contrary development has taken place in three forms belonging to the men's speech; iagáne *my boat*, iágu *my drink*, and iúdi *my ration, share* (usually, but not necessarily referring to flesh or fish) are today monomorphemic words, and combine with no affixes. They cannot therefore properly be classed as morphological nouns, although they are commutable with nugúne *my boat*, nuníę *my drink*, and núį *my (portion of) meat* or nufára *my share* (whose stem is borrowed from Fr. part), which are possessed nouns of the women's speech; and must be replaced by such possessed nouns as bugúne *thy boat*, etc., when any but first-person singular possessor is to be indicated. Historically, all three contain the Kalina (Carib) possessive person-marker prefix i- *my/me*, which continued in meaningful—though non-productive and diminishing—use in the dialect of Dominica, where I myself recorded forms corresponding to the last two: iuáku (Breton's 'iouácoulou') *my drink*, and iúti *my share (of food etc.)*.

11.5. Reduplication, while it has neither grammatical function nor a regular type of formation in this lauguage, is fairly common, and may be exemplified by the following nouns and noun-themes: báibai *seaside grape (Coccolobia uvifera)*, balábala *wheel*, gége *excrement*, gurégure *windpipe (trachea)*, iáiaua *pineapple*, -idéde *uvula*, ífufu *inflated bladder*, -ję́je *tongue*, sáuarauára *sea-gull*, sísira *rattle*, uádigidígi *fire-fly*, uarígabagába *butterfly*, ueréuere *(common house) fly*, uéue *wood, stick, or tree*. Synchronically, the analysis of most of these words is obscure. However, the name for *wheel* (as also, partially, the verb abálabahá *to roll*) shows reduplication of the particle bála *rolling, leaning or turning over*; while that for *uvula* doubles the particle dé—as in dé-bai *dunk it (dip it in sauce)*, which forms the base of the verb éderaha *to dunk* and of the noun-theme -éde *bottom*. On the other hand, the resemblance of -idéde *uvula* to the verb édederá *to drip* may well be due to convergence; for the latter apparently corresponds to Breton's seventeenth century Dominican átataká *to drip*, which suggests rather a connexion with áta *to drink* (of both dialects).

12.1. A general tendency—from which there are many particular deviations—to place stress on the second syllable of trisyllabic and longer words other than verbs containing A-. (11), and on the first syllable of shorter forms, may be illustrated by 4 + 12 + bunánǫ *thatching-rods* = tibúnanǫ *its thatching-rods*, 22 + bunánǫ + 205 + 104 = mabúnanǫtu *it is without thatching-rods*, 4 + 12 + gumáį *sore* (N) = tugúmaį *her sore*,

3 + 12 + lo *absent, having ceased, lingering,* (P), + dą́ *time* (N) = lílo dą́ *its-delay (the slow passing of) time* (NN), 3 + 12 + só *ardent* (P) + uátu *fire* (N) = líso uátu *its-ardour fire* (NN)—*the fire's fierce heat,* and by the examples given under **11.3** above. Such an opposition as that which exists between the phrases ká iamádi *what basket* and ká iámadi *whose basket* is to be explained by saying that the noun of the latter form contains a zero alternant of the morpheme I- (12); this alternant being restricted to the position before initial vowel-clusters which, like /ia/ and /ua/, are monosyllabic if unstressed, but disyllabic when either component bears stress. Examples of deviation from this norm are: gelę́ *key,* which retains its stress in possessed nouns such as tigelę́ *her key,* as in adjectival and verbal derivatives like megelę́ *keyless* and egelę́ca *to lock*; licú báu *thy intelligence* (lit. *its-smartness on-thee*), with the same stress as in cúti báu *thou'rt intelligent* (lit. *it-is-smart on-thee*); déį *thimble* (from Fr. dé), which retains its stress as in tidéį *her thimble*; and hú *hoe* (from Fr. houe), which shifts stress to the prefix I- (12) of its irregular theme and base (explained in footnote 3, section **4**), as in túute *her hoe.*

Nouns whose absolute forms have an initial consonant-cluster—which occurs in this position only before a stressed vowel—break it up when a prefix is added; so, nugúrabų *my iron or my nails,* from borrowed grábu *iron or nails* (Sp. clavo).

Trisyllabic (and longer) nouns having stress on the first syllable may or may not shift it to the second syllable when a syllabic suffix is added; so íbiri *younger brother* + 108 *pluralizer* = ibírią *younger brothers*; but íbiri *younger brother* + 322 *collectivizer* = íbirigú *younger siblings.*

Some nouns appear to have subdialectal variants with different stress; so, I recorded uáiuhúiuru and uaiúhuiurú *thunder-storm,* úiari and uíari *kind(s) or sort(s),* hália and halía *where.* It seems possible that variation in the last two may be conditioned by context, but this would hardly hold for such a long word as the first.

12.2. Nasalization of vowels—particularly at morpheme-junctures—is another unstable feature, which may be lost, shifted, or acquired as a result of affixation, change of stress, reduction of vowels (see **12.3** below), or a combination of these with other, contextual circumstances. It is always lost (or absorbed) before a nasal consonant, as in 4 + 12 + rį́ *rice* + 211 = tiríni *her rice,* -amídą *amid* + 211 = amídani *middle*; conversely, it may be acquired in compensation for the loss of a nasal consonant (see **12.4** below). Before suffixes beginning with other consonants, it may or may not be lost; so, sábų *soap* and bą́ *stockings* lose their nasalization before -te (324), as in tisábute *her soap,* tubáte *her stockings,* but gą́ *gloves* retains it in the same position, as in tigą́te *her gloves.* Similarly, numégę *my necessary possession* loses its nasalization before collective -gu (322), as in numégegu *my belongings*; and so does lídą *in it* before directional -gię (342), as in lídagię *out of it*; but lų́ *to or for him/it* retains it before stato-reflexive -gua (321), as in lų́gua *to or for himself.*

The pluralizer (108) always takes the form -nų when it occurs with a noun whose theme ends in a nasalized vowel or vowel-cluster, this nasalization being thereby absorbed, as in namúlę *my younger brother* + 108 *plural* = namúlenų *my juniors,* níbugaią́ *my elder sibling* + 108 *plural* = níbugaiánų *my seniors.* Contrariwise, other variants of the pluralizer often infect theme-final oral vowels, as in iráho *child* + 108 *plural* = iráhǫią *children*; to which their own nasalization may be completely transferred, as in nidúhe *my kinsman or kinswoman* + 108 *plural* = nidúhęiu *my kinsmen or kinswomen.* This last recorded phenomenon may perhaps result only from the devoicing of final vowels before pause.

Only one nasalization is heard in monosyllabic vowel-clusters, so that lídą *in it* + -ų *to* (341) = lídaų *into it*; but two may be

distinguished in disyllabic sequences—that on the unstressed vowel being very weak. This results in such variation as is seen in the nominal morphemes -ɟą ~ -i(a)- *anger* and -ɟǫ ~ -iǫ́- *hymen* as they occur, for example, in the possessed nouns lɟą *his anger* and tɟǫ *her hymen*, compared with the forms they assume in the verbs gáiahadíbu *thou hast got angry*, agáida *to get angry*, and gaiǫ́giru *she's still a virgin* (more literally, *she still has a hymen*). The same is true of affixes; as may be seen by comparing the shape of the suffix -gię (342) in lídagię *out of it*, where it is monosyllabic, with that which it assumes in ónabugɟę *below*, where it is disyllabic. In the reduced form of the nominal morpheme -gúie- ~ gué (as in the noun ugúie *today*, the noun gúiau *evening or this evening or in the evening*, and the verb agúieda *to become evening*; see **11.4** above and **12.3** below), nasalization is shifted to the only remaining syllabic vowel, as in gué léa *now, nowadays*.

12.3. Regressive assimilation of unstressed vowels, complete or partial, is very common, although still optional (in free variation) in many cases. Variants such as aréba ~ eréba *cassava-bread* and nímenodi ~ nímenedi *my mother-in-law* appear to be equally common; in nebéneri ~ nibénari *my door* (béna *door*), némeri ~ némari *my road* (óma *road*), nubúgiote ~ nibúgiote ~ nibúgiute *my God* (búgiu *God*), and údorao ~ údurao *fish* (údu + 353), the assimilated forms are the commoner; while from agúsa *needle* (Sp. aguja) and sírasi *scissors* (Sp. tijeras) I heard only dependent forms in -agúsete and -isíres(e)te, the latter usually with loss of the parenthetic vowel. Assimilation of a stressed vowel, as in icígo ~ icógo *head*, is rarer; but, when once widely accepted, seems to drive out the unassimulated form more thoroughly than is the case with assimilation of unstressed vowels. So isúbusei *mirror* has replaced earlier isíbusei in the speech of all but the oldest generation. An end-product of this process is seen in modern ógorogo *flesh*, compared with seventeenth century Dominican ékriko ~ ékorik (with the same meaning).

The type of alternation seen in nerému (or more conservative neréməri) *my song* and némari *my road* as compared with absolute orému *song* (cf. erémuha *to sing*) and óma *road* has nothing to do with assimilation, is limited to these and perhaps one or two other forms, and is almost certainly residual.

Stem-final /e/ changes to /a/ before the /u/ of -u (341), -(u)ga (332), or -uni (which appears to be a complex of 221 + 211). So binádo hábię *their old home* + -u *to* = binádo hábiau *to their old home*, (binádo *old* = *former*, -úbię *home or at home*); -gúie- (as in agúieda *to become evening*, ugúie *today*) + -u (341) = gúiau *evening, at evening*; lére *his/its strength* + -(u)ga *generalizer* = lérauga *its wildness or roughness* (*of the sea or elements*); lanáime *his/its violence or roughness* (*of behaviour*) + -(u)ga = lanáimauga *its general violence or rowdiness*; ibídię *unknown* + (nominalizing) -uni = ibíd(i)auni *ignorance or foolishness*, whose meaning may be generalized by the addition of -(u)ga as ibíd(i)aunigá.

Stem-final /i/ changes to /a/ before -u (341) in -árigi *after* + -u *to* = -árigau *backward or back to* (*an earlier position or condition*), and probably elsewhere. After stem-final /i/, /o/, or /u/, the parenthetic vowel of -(u)ga (332) is lost, as in lidíli *his/its coldness* + -(u)ga = lidíliga *its general coldness* (*of the weather, etc.*); except after stem-final -NE (211, which appears as -ni when word-final), whose vowel appears as /a/ before the /u/ of this suffix, as in 3 + adóroha *to thunder* + 221 (= zero in this position) + -NE (211) + -(u)ga (332) = ladórohanáuga *its thundering*, a generalized verbal noun. Though said to be 'incorrect', the form ladórohaníga and its analogs are often employed by speakers of the younger generation; (cf. also the last word of the preceding paragraph, where

this reduction may be due to dissimilation rather than to linguistic change).

Compound nouns are few—at least in my material; so that little concerning their formation can be affirmed with assurance. With one or two doubtful exceptions, however, both vowel-reduction and loss or change of stress are incurred by one or the other member in the process of compounding. So, with $-V_1 + \acute{V}_2- > -V_2-$: aníg*i* *heart* + -úrugu *interior* > anígurugú *chest* (*thorax*); béna *door* + ébu *support* > bénebu *threshold*,—with which contrast béna *door* + -bu (327) = bénabu *at* (*the*) *door*, and compare syntactic lébu béna *its-support door—the support of the door*; bíra *sail* + ébu *support* > bírebu *mast*; iúmau *mouth* + *-úlugu (taken to be an archaic and petrified equivalent of -úrugu *interior*) > iúmulugu *interior of mouth, palate*; -úrugu *interior* + -ábu *behind, with, etc.* (see **11.31** above) > -urúgabu *close to/by*; gáiu *cock or hen* (from Sp. gallo) + hị *fruit or offspring* > gáię *egg*(*s*); this last example showing dissimilation of -ị to -ę after preceding /i/ (as well as, of course, loss of absolutive h-). With $-V_1 + \acute{V}_2- > -\tilde{V}_2-$: uadábu *conch* + ágai *container* > uadabágai *conch-shell*,—with change of stress in dependent forms, as in nuádabagái *my conch-shell*; and, with obsolete first members, simáli *grater* + ári *tooth/teeth* > sìmaráli '*grater-teeth*' (so translated)—i.e., *stone chips made for insertion into a grater-board*, showing secondary stress and metathesis; úle (*any*) *tuber used as food* + ágai *container* > urágai *belly*, with change of /l/ to /r/. There is but one example of $-V_1 + \acute{V}_2- > -\tilde{V}_1-$: mába *honey or bees* + ídiga *excrement* > mabádiga *beeswax*; as likewise of $-\acute{V}_1 + \acute{V}_2- > -\tilde{V}_1-$: gumú *consummated* (P) + ílao *contents* (N) + (nominalizing) -li (212) > gumúlali *smoke* (N), (gumúla *smoky* is a particle, and underlies agúmulahá *to smoke*); and of $-V_1 + V_2- > -V_1-$: gą́(h)ị *manioc* + agócao *cutting*(*s*) *or plants* > gą́igoca *manioc-cutting*(*s*). Compared to such a normal syntactic construction as líra tágu *its-juice her-eye*(*s*)*—the juice of her eyes*, tágu-ìrao *her tears* must be considered as a semi-compound at least; yet it is anomalous for a compound in that no vowel is lost, while the second member, írao *juice*, retains secondary stress (not recognized as a phoneme) when compounded. With $-V_1 + \acute{V}_1- > -\tilde{V}_1-$: arígai *ear*(*s*) + ílao *contents* > arigáilao *ear-ring*(*s*),—in which, however, stress is sometimes heard on the second syllable; iúmau *mouth* + áru *edge or border* > ìumáru *lip*(*s*),—which has four syllables on account of the secondary stress on its first vowel; and híu *prickles or body-hair* + -úrugu *interior* > iúrugu *pubic hair*, with loss of h- (31). Many one-time compounds must now be considered as monomorphemic words; so ímenodi *mother-in-law* and ímedamúru *father-in-law*, whose former second members are quite unknown as free forms today, and whose common first member is only historically identifiable with modern hí, -ị *fruit or offspring*; cf. inúti *grandmother*, itámulu *my grandfather*, and ím *son* of the Dominican dialect as recorded by Breton.

Apart from compounding, reduction of vowel-clusters is largely a matter of linguistic change in progress rather than one of synchronic alternation. So, in the following nouns, the parenthetic vowels are present today only in the speech of a dwindling minority of very conservative speakers, who are mostly, though not exclusively, old people: binái(u)i *morning* (corresponding to Breton's binálepule), -iáb(u)i *arrival or coming* (Breton's ıuábuli, recent Dominican -iábri), máí(u)ia *bush-spirit* (mápuia of old and recent Dominican), mú(o)na *house* (Breton's muéną, recent Dominican muíną). However, the form gu*ę́* léa (or gu*ę́* tóa) *now or nowadays*, which contains the same morpheme as is seen in the word ugúie *today*, appears to be a set phrase occurring in the same variety of speech as has the latter noun (ugúie).

A notable example of subdialectal variation—local rather than age-group, in this

case—is the bound noun-theme (and base), -ídi ~ údi *departure or going*, whose former variant is more usual in British Honduras, while the latter is commoner in the Republics. This diversity has a simple but purely historical explanation; comparison with the corresponding forms in the early and recent stages of the Dominican dialect, Breton's iútuli and iuítuli, Rat's iútiri and -íuti, which have the same meaning, making it clear that both modern Central American forms result from a reduction of the same linear vowel-cluster, diversely accented.

12.4. The phonemes /p/ and /k/ occur intervocalically only in recently borrowed forms, where they vary freely with /b/ and /g/, as in éipani ~ éibani *apron*, and nitíkitį ~ nitígitį *my ticket*, both from English.

Otherwise, loss or change of consonants in noun-stems is rare and quite unpredictable. In certain cases, h, g, r, or n may be lost.

The noun iráho *child, lad, lass, little one* (used of animals, trees, etc. as of human beings) retains its /h/ in dependent forms only when it is followed by the pluralizer (108, which occurs only in some—but not all—nouns denoting animate beings); so, niráo *my child*, but niráhǫią *my children*; uaráo *our child*, but uaráhǫią *our children*; garáo *having child(ren)*, maráo *childless*, aráoda *to beget or to breed*.

The adverbial noun-theme -árigię *afterwards* almost certainly results from -árigi *after* + -gię (342). In combination with stato-reflexive -gua (321), uágu *upon or about* loses its consonant, as in uauágu *about us* + -gua (321) = uauáugua *about ourselves*. In both these cases, the loss appears to be dissimilatory, and analogous to the loss of /g/ or /h/ from the verbs adíga, ácuga, áluga, aríha, whenever either -ha (301) or -gua (321) is added to these as stems (see section **8**). On the other hand, stem-final vowel and suffix-initial consonant are both lost when -gua (321) is added to -ubára *before, in front of*, as in lubára *in front of him* + -gua = lubárua *ahead of him(self—reflexive)*. The same stem combines regularly with -ų (341) to form -ubárau *to the front of*; but the irregular formation -ubáruagau *to the front of . . . self* (*reflexive*) apparently results from a combination of -gua (321) and -ų (341) with the same stem, —perhaps owing to the attraction of such regular formations as -anágau *to the back of*, -árigau *back to or backward*.

The parenthetic ending of -ubá(ra) is always lost when this form is converted into a verb, as in lubáti larúga bináfi *it-is-before-it its-dawn morning—it was before the break of day*, and is usually lost when it occurs before pause, as in (lų́ tíciguní nų́) bubá (*for her giving it to me*) *for thee*. In all other cases, such as -ubárua (see above), at least the /r/ of this ending is always retained. The parenthetic ending of ibá(ri) *grandchild* is lost only and always when the pluralizer (108) is added; so ibári *grandchild*, nibári *my grandchild*, ibą́ią *grandchildren*, nibą́ią *my grandchildren*, nibą́iagu *my grandchildren as a collectivity* (with 108 + 322), nibáiani *my progeny* (with 108 + 211). The longer variant of -uária ~ -uái *away or off from* is employed only in songs and in ceremonial or archaizing speech.

As in the case of the particles ių́ *sitting* (*state*, as in ių́ lią́-ti *he is sitting*), niurú *sitting* (*action*, as in niurú-ba *sit down*), so there are a few nouns in which /n/ fluctuates with vowel-nasalization; for example, niulú(ti) (*it is*) *soft* may be converted to a noun as in 4 + I- (12) + niulú *soft* = tį̨ulu *her softness*. Such alternation should be compared with that, quite regular, which takes place in the suffix -NE when the latter occurs in adjectival and in verbal nouns, as -ni when these are absolute and have no following suffix, as -n before a following suffix with initial vowel, and as V̨ (nasalization of stem-final vowel) in all dependent forms in which -NE is word-final. Examples: 12 + buídu *good* (P) + -NE (211) = ubuíduni *goodness* (N); t- (4) + ubuíduni *goodness* = tubuídų *her goodness*; mA- (22) + ubuíduni *goodness* = mabuídų *without*

goodness (P); áiga *to eat* (V) + -U (221) + -NE (211) = áigini *eating or meal* (N); t- (4) + áigini + -u (104) = táigunu *her eating f.-it* (N); mA- (22) + áigini = máigị *without eating* (P); náiga *I eat* (V) + -NE (211) = náigą *my food* (*that which I eat*). Strictly speaking these examples do not concern major morphemes, except in so far as a vowel belonging to the latter may serve as vehicle for the superfix V̨. In the case of the adverbial noun-theme -úni ~ -ų́ *to or for*, the longer variant is today ceremonial or archaizing, except for its occurrence in denominal formations containing a prefix of class 20, where it is always employed, as in mA- (22) + -úni + 205 + 103 = máuniti *it is pointless—not worth while*, gA- (21) + -úni + -gi + ba *2nd sg. imperative* = gáunigi bá *pay attention*!

With the possible exception of uátu *fire*, dependent -íleme *fire* (as in níleme *my fire*, uéleme *our fire*, méleme *fireless*), I know of no cases of true noun suppletion other than the two cited above at the beginning of section **9.**

A TYPE OF NOUN FORMATION IN ATHABASKAN AND EYAK

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1. Chipewyan nouns with suffix -ɬ ~ -l-ɛ
2. Cognates in Athabaskan
3. Eyak as Na-dene rather than as one of the Athabaskan languages
4. Eyak nouns in -ɬ

1. In Chipewyan, a northern Athabaskan language, I have noted a number of nouns apparently formed with a suffix -ɬ or its corresponding heavy syllabic form -l-ɛ.[1] This fact becomes clear if we compare them with their related verb stems which do not show a lateral final. The following examples will suffice.

kúɬ *that which is vomited*, cf. -kui, -kui, -kui *to vomit.*

ƛóɬ *smile*, cf. γóγ *laugh*, -ƛóγ, -ƛóγ, -ƛóγ, -ƛóih *to laugh.*

hokaɬ *file*, cf. -ka, -ką, -ka *to file, sharpen.*

sáɬ *hook*, cf. -sáih, -sáih, -sáih, -sáih *to hook*, and -zé, -záγ, -zé, -záih, -záɬ *to hook at.*

dɛčen ćáɬ *wooden nail*, cf. -cé, -cáγ, -cé, -cáih *to nail.*

cą́cíɬ *toilet paper* < *excrement wiper*, cf. -cír, -cir, -cír *to wipe oneself.*

ʔɛγʷoz hoƛóɬ *a little brush or mop used to splash water on the canoe to keep it damp* < *canoe rib splasher*, cf. -ƛóγ, -ƛóγ, -ƛóγ, -ƛóih *to make a splashy noise.*

xɛɬ *something to be carried on the back, pack*, cf. ···, -γi, -γé, -γɛɬ *to carry on the back.*

ƛ̓uɬ *string*, ƛ̓ulɛ *rope*, cf. -ƛ̓ų, -ƛ̓ų, -ƛ̓ų *to tie a rope, to bind*

ʇęɬ *axe*, contracted from ʇe-nɛɬ. Cf. Nav. cénił *stone axe*, and -ne?, -ne?, -ni·ɬ, -ni·h *to strike with a stone axe.*

ʇaɬ *awl*, cf. -ʇé, -táγ, -ʇé, -táih *to cut a hide up into babiche*, and Nav. cah *awl*, and -cé·h, -cih, -cih *to handle a long object like pole, bar, awl.*

ʔɛʇaɬé *animal's teats*, cf. -ʇaγ, -ʇaγ, -ʇaγ *to hold with one's teeth, in one's mouth*, cf. Nav. -cé·h, -ca?, -cah *to grip with teeth or tool.*

ƛ́éɬ *steel used to strike flint to make fire*, cf. -ƛ́ér, -ƛ́ér, -ƛ́ér *two or more objects knock against each other.*

-ʇélé (possessive form) *the thing on which one sits, sleeps, etc.* cf. -ʇéih, -ʇį, -ʇé, -ʇeih, -ʇéɬ *one living being lies.*

Some verb stems, as can be seen from the above, show a suffix -ɬ in the progressive form and sometimes in the future. This is the well-known progressive suffix found in various Athabaskan languages, and may not be necessarily connected with this noun suffix (cf. infra).

2. Such nouns are not only found in Chipewyan; similar types are found in Sarcee, another northern Athabaskan language, and also in the Pacific coast and the southern Athabaskan languages. Thus their existence as an Athabaskan prototype of noun formation seems quite certain. I shall give a few examples from Sarcee, Mattole, Wailaki, and Navaho[2] to illustrate this point.

[1] Cf. Harry Hoijer and others, Linguistic Structures of Native America, 1946, p. 401. All orthography in this article has been made to conform to Americanists' normal usage for its simplicity of comparison, i.e. ʒ, c, ć, š, č, ǰ, š, ƛ, ƛ́ for my former dz, ts, t̄s, dj, tc, t̄c, c, dl, tɬ, t̄ɬ respectively. I use barred d, t, and ʇ for dð, tθ, and t̄θ, and retain ɛ for nasalization.

[2] For Sarcee, see F.K.Li, A Study of Sarcee Verb-Stems, IJAL 4.1, 1930, pp. 3–27, and some material put at my disposal by Edward Sapir; for Mattole, see F. K. Li, Mattole, an Athabaskan Language, Chicago, 1930; for Navaho, see Berard Haile, A Stem Vocabulary of the Navaho Language, St. Michaels, Arizona, 1950–51. The Wailaki material was gathered by me in 1927, and is not yet published.

Sar. -γą́·l *a globular rawhide rattle*, cf. -γą́?(d-) *to shake.*

Sar. xáɬ *burden*, -γálà? (poss.) *saddle*, cf. -gàh, -gí(n-), -gáɬ, . . . , -gàhi *to carry, to travel with a pack.*

Sar. gúgúɬ *dagger*, cf. -gú?(d-), -gu?(d-) *to stab.*

Sar. tà·l *bed, bedding*, cf. -tàh, -tí(n-), -táɬ, -táč, -ta?i *to lie to sleep*, and Chip. -télé above.

Sar. íkąɬ *tanned hide*, cf. -ką́?(d-), -ką̀?(d-) *to spread out a fabric.*

Sar. cíɬ *axe*, cf. Chip. ʇɛɬ above.

Sar. cą́ɬ *awl*, cf. Chip. ʇaɬ above.

Sar. ƛ̓úɬ *rope*, cf. -ƛ̓ù, -ƛ̓ú(n-), -ƛ̓úɬ, -ƛ̓uč, -ƛ̓úɬi *to tie a rope*, and cf. Chip. ƛ̓uɬ above.

Sar. ċą·l *baby's moss bag*, cf. Nav. ?awé·ċá·l *baby cradle.*

Sar. ċúɬƛ̓áɬ *old Indian tool for fire making*, cf. Chip. ƛ̀ɛ́ɬ above.

Mat. ɬoɬ *chisel*, cf. -ɬo?g, -ɬo?g, -ɬo?g *to chisel*, Chip. -ɬu, -ɬoγ, -ɬu *to sting.*

Wail. tíbiɬ *packing basket*, cf. Mat. -bix, -bix, -bix, -bix *to handle a basket.*

Wail. ċal? *baby basket*, cf. Sar. ċą·l above, Mat. ċa? *basket.*

Wail. -ɬol? *string*, cf. Chip. ƛ̓uɬɛ above.

Wail. sáhal *needle*, cf. Chip. ʇaɬ *awl* above.

Nav. ƛ̓ó·ɬ, -ƛ̓ó·l *rope, cord*, cf. -ƛ̓ó, ƛ̓ǫ́, -ƛ̓ǫ́·ɬ, -ƛ̓ǫ́·ɬ *to weave, knit*, and Chip. ƛ̓uɬɛ above.

Nav. ?aγá·ɬ *rattle*, cf. -γá·d (ipf., opt., pf.) -γaɬ, -γa·d *to shake*, -γad (ipf., opt., pf.), -xaɬ, -γa? *to give the rattle a shake*, and Sar. -γą́·l above.

Nav. ƛ̓é·ɬ, -ƛ̓é·l *igniter, fire drill apparatus*, cf. Chip. ƛ̀ɛ́ɬ, Sar. ċúɬƛ̓áɬ above.

Nav. xé·ɬ, -γé·l *pack*, cf. -γe·h, -γí, -γé·ɬ *to transport, handle a burden*, and Chip. xɛɬ above.

Nav. ya·te·ɬ, -ya·te·ɬ *bedding*, cf. Chip. -télé and Sar. ta·l above.[3]

Nav. -ƙal *crotch, space between outspread legs*, cf. -ƙai *to spread legs apart*, and Chip. ? ɛƙayɛ *fork of the legs.*

Nav. ?akaɬ *rawhide*, cf. -ka·d *to be spread out flat*, and Sar. íkąɬ above.

Nav. -gá·l *means of travel used by supernaturals, gait*, cf. -yá·h, -yá, -gá·ɬ, -dá·h, -ya? *one person goes.*

Nav. sa·ɬ *speaking?* in ʇá·sa·ɬ yah?í·yá *keeping up speech he entered*, cf. sa·d *speech.*[4]

Nav. λo·ɬ *while laughing*, cf. λo *laughter*, and -λó·h, -λo?, -λo *to laugh, smile*, and Chip. λóɬ above.

Nay. ?awé·ċá·l *baby cradle*, cf. ċa·? *basket.*

It is clear from the preceding examples from the various Athabaskan languages that we may safely assume such a common Athabaskan type of noun formation. It is, however, interesting to note that some forms have the suffix -ɬ in all dialects and some have the suffix in certain dialects and not in others, cf. Chip. kúɬ, but Nav. -kʷi·; Chip. taɬ, Sar. cą́ɬ, but Nav. cah; Nav. -ƙal, but Chip. ? ƙayɛ.

Most of the nouns given above seem to be instrumental nouns. The suffix -ɬ may be ultimately connected with the postposition Chip. -ɛ́ɬ, Nav. -iɬ, etc. *with, together with*; whether it can be connected with the progressive -ɬ, as suggested by Berard Haile for some forms, is doubtful in the light of the overall Athabaskan picture. It is quite possible, however, that some forms with -ɬ may be associated with the progressive form in Navaho.

3. In Eyak, a language along the southeastern Alaskan coast,[5] we find a fairly

[3] B. Haile suggests in his vocabulary (ibid. Nav.-Eng. p. 192) an etymology *under wide* for this word, thus connecting it with ùtˣe·l *broad.*

[4] B. Haile (ibid. p. 225) considers sa ɬ a progressive form of sa·d, similarly λo·ɬ a progressive form of λo.

[5] It was through a grant from the Wenner-Gren Foundation that I was able to collect my Eyak material in Yakutat and Cordova in the summer of 1952. I wish also to acknowledge my indebtedness to Frederica de Laguna, who helped me in making contacts with the Indians. Some linguistic material is given in Kaj Birket-Smith and F. de Laguna, The Eyak Indians of the Copper River Delta, Alaska, 1938.

large number of nouns, particularly instrumental nouns, ending in a final -ɬ. Before we go on to cite the forms in Eyak, a few words may be said about the relationship of Eyak to Athabaskan, as their relationship has not yet been clearly stated. In vocabulary, Eyak differs tremendously from the Athabaskan in general. Such common words as dí·ya *water*, daɑ́á·k *fire*, ɑ́oláqa *head*, lɛ·ɬ *hair*, ɑ́otá *skin*, ɑ́oyɛ́ɑ́aɛ *hand*, etc. do not correspond to the common Athabaskan words, cf. Chip. tu, kún, tí, -yá, -δéδ, -(ɲ)lá, etc.; although it is quite possible that such words may be eventually connected with some Athabaskan stems. A fair number of words can be directly compared with the Athabaskan forms, such as -ta· *father*, ɑ́oǯé·x *ear*, -yahš *son, child*, ɑ́osáht *liver*, ɑ́olá·x *eye*, lá?di *two*, cf. Chip. -tá, -ʒaγ-á, yaze (*small, little one*), -δér, -naγ-á, nákɛ, etc. Regular phonological correspondences can be obtained from such comparisons.

Eyak is not a tonal language. Phonologically Eyak differs from the Athabaskan in general in not possessing voiced fricatives, and thus does not show an alternation of voiced and voiceless fricatives, so common in the Athabaskan languages.[6] It has a series of velar and of uvular consonants g, k, ƙ, x and ǥ, q, ɑ́, x̣, corresponding to Athabaskan palatal and velar consonants, preserved in Hupa and Wailaki as ǥ, ķ, ƙ and g, k, ƙ, γ. Eyak permits a great variety of consonant clusters particularly in final positions, whereas the modern Athabaskan languages rarely permit them. It is to be expected that Eyak will throw light on the reconstruction of Athabaskan finals, thus Eyak -?ašk *to sneeze* will throw light on Chip. -?áis *to sneeze* which has been reconstructed as Ath. -?aš-?-x̣ (or ķ). The problem may be complicated, however, by the Eyak innovations in the treatment of final clusters.

Structurally Eyak is very similar to Athabaskan, but there are great differences in morphological details. The verb stems do not show much alternation of phonemic shapes. There are both syllabic and nonsyllabic classifiers for the verb stems, similar to the Athabaskan classifiers both in function and position (cf. also Tlingit classifiers). Thus the Eyak classifiers are -zero-, -d-, -da-, -di·-, -ɬ-, -ɬa-, and -li·-, corresponding to Ath. -zero-, -d-, -ɬ-, and -l-.[7]

On the whole it seems to me that while Eyak is definitely related to Athabaskan, it cannot be considered as one of the Athabaskan languages. Perhaps Sapir's Na-dene group may be said to have definitely two members, Athabaskan and Eyak, what other members may eventually be included will remain to be worked out. I wish to study in this short paper merely a type of noun formation in Eyak which seems to correspond definitely to the Athabaskan type just discussed.

4. There are a large number of instrument nouns with a final -ɬ in Eyak; I shall only give some examples where such nouns can be definitely related to stems without -ɬ. In some cases we may be able to compare them with the Athabaskan forms. I shall quote the Eyak verb forms in full with a short analysis if necessary.

ɬiɑ́ɬ *arrow*, cf. the following verb forms:

xʷoqé?iɬɬiɑ́ *you'll shoot me with an arrow*, xʷo-me, qe?- future, ?i- 2nd pers. sing. subj., ɬ-transitive classifier, -ɬiɑ́ stem, *to shoot an arrow*.

di·ɑ́ ?iqé?xʷɬɬiɑ́q *I'll not shoot you*, di·ɑ́ . . . q negative (cf. Mat. do· . . . ihih), ?i- 2nd pers. sing. obj., xʷ- 1st pers. subj.

?iɬó? dá·sɬaɬiɑ́ɬ *we have shot at each other*, ?iɬó?- *each other*, da·- 1st pers. plural subj., s- perfective, ɬa- medio-passive classifier,

[6] The Pacific coast Athabaskan languages do not regularly show an alternation of voiced and voiceless initials in the stems at the present time, there are traces, however, of an older alternation, cf. Mattole, an Ath. Language, p. 2.

[7] The Pacific coast Athabaskan languages have also syllabic classifiers, for instance, Mattole -di-, cf. ibid. p. 70.

-ɬ suffix used in perfective and progressive forms.

Cf. Nav. -ɬoh *to shoot arrows*, Sar. -ɬúh, -ɬù·, ——, -ɬùč *to shoot*, Mat. ɬoɬ *chisel*, -ɬo?g, -to?g, -ɬo?g *to chisel*.

čeɋɬ *hook*, cf. qó?xwɬčeɋ *I shall hook it*, qo?- future. šíɬčeɋɬ *I have hooked it*, š- perfective, derived from s- assimilated to the following č-, i- 1st pers. sing. subj. in the perf.

ca?ɬ *knife, dagger*, cf. ca· *rock*, Chip. ɬɛ, Nav. cé. Perhaps also related to yaqó?xʷɬ-caɤ *I shall cut it up*.

xʷo·ɬɬ or xʷó·ɬkɬ *rifle, gun*,[8] cf. qó?xʷɬxʷo·ɬ *I shall shoot it with a gun*, si·ɬxʷó·ɬɬ *I have shot it*. si·ɬxʷó·ɬɬ *I have shot him*. The variant form xʷo·ɬkɬ has a suffix -k probably of diminutive origin, found in number of nouns, cf. examples infra.

ɬahɬ *feather*, cf. Chip. ɬa, -ɬá, Mat. ɬa?, Nav. ɬá, -ɬa?, also Chip. -ɬal, -ɬal *to feather an arrow*.

guɬɬahɬ *leaf*, cf. Chip. -ɬą́, Mat. -ɬaŋ?, Nav. -ɬą·?. This word is also said to mean feather, thus equivalent to the preceding word. In Athabaskan this word is distinguished from the preceding word by a nasal, but in Navaho the stem for feather may also take a nasal element, for example, ?asɬą́ ~ ?asɬá·n *feathering was done*.

ɋa·kɬ *boiler basket made of roots*, cf. Mat. -ɋa?, Nav. ɋa·? *basket*; -k is probably a diminutive suffix.

kohsɬ *apron*, cf. Chip. -čuθ, -čúð, -čuθ, -čiθ, -č ɛθ *to handle fabric*, Nav. -co·s, -co·z, -cos.

ɋahk or ɋahkɬ *quills of porcupine*, cf. Chip. ƙá *arrow*, -ƙá *sharp edge*, Mat. ƙa? *arrow*, Nav. ƙa·? *arrow*.

[8] It is necessary to distinguish the unitary phoneme -ɬ́ from the cluster -ɬɬ in Eyak. Similarly ɬ́ from -ɬɬ.

ƛ·?mą·tɬ *bread*, cf. mąht *to bake*, sa?mą?tɬ *it is baked*.

ƙoɬ or ƙoɬɬ *thread, sinew*, cf. Chip. -č ɛr-ɛ *tendon*, Nav. -ɋid *sinew*, also Nav. dičid *it is tough*, Chip. -č ɛ́r, -č ɛ́r, -č ɛ́r, -číy *to pull tight*, Mat. -ɋye?ɬ, -ɋye?d, -ɋye?d, -ɋe?ɬ *to stretch a rope*.

wayáh ɋaɋá·kɬ *stove* < *in it fire burns*, cf. daɋa·k *fire*, Chip. -ƙą́ih, -ƙą, -ƙą́ih *to burn*, -ƙąih, -ƙą, -ƙą́ *to build a fire*.

The preceding examples may suffice to show a type of noun formation with a suffix -ɬ similar to Athabaskan. The few verb forms quoted and analyzed above may serve to indicate certain similarities to as well as certain differences from the Athabaskan verbal morphology.

The suffix -ɬ may also be related to the postposition -ɬ́ *with, together with*, cf. the Athabaskan postposition Chip. -ɛ́ɬ, Nav. -iɬ, etc. For the relationship of Eyak -ɬ́ with Ath. -ɬ, cf. Eyak. ɣaƛ́k *club, stick*, Chip. xáɬ, -γáɬ *club*, Nav. xa·ɬ, -γa·ɬ.

In Eyak there is a verbal suffix -ɬ used with the progressive and the perfective forms, cf. Ath. -ɬ with the progressive and the future forms. In Eyak ƛ·?mą·tɬ *bread* and wayáh ɋaɋá·kɬ *stove* quoted above, the suffix -ɬ may be associated with this progressive-perfective suffix used in the verbs, just as Haile suggests for sa·ɬ and λo·ɬ in Navaho, cf. also Nav. -ga·ɬ *means of travel, gait*. The problem of eventual etymological connection of this nominal suffix -ɬ with other morphological elements will have to wait until more is known about the Common Athabaskan and Eyak, what we wish to point out here is the existence of a type of noun formation which can be traced through all the Athabaskan languages as well as Eyak.

ARAPAHO I: PHONOLOGY

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1.0. Introduction
1.1. Styles and contours
1.2. Consonants
1.3. Vowels
1.4. Prosodemes
1.5.1. Consonant clusters
1.5.2. Vowel clusters
1.6. Lexicon

1.0. The present paper[1] is concerned with the phonology of Northern Arapaho, the Arapaho dialect habitually spoken by about 1000 persons[2] residing on the Wind River Indian Reservation (Wyoming). Hereafter, this dialect will be referred to as Arapaho.

In order to provide Algonquianists with a readily usable Arapaho lexicon, I am departing from the usual practice of listing illustrative forms throughout the text; instead, I am appending most of them with numerical identification in a separate section (**1.6**).

1.1. The stream of speech in Arapaho may be described as a succession of phrases which are delimited by pauses and consist of one or more accentual contours. The extent of a contour is determined by the style of delivery. Thus, utterances forthcoming under circumstances of formal nature—e.g., during ceremonies, deliberate storytelling (such as of an old Arapaho to his grandchildren), or controlled linguistic inquiry—are broken up by junctures into contours which closely correspond to words. On the other hand, utterances of an informal discourse or a spontaneous narration are characterized by more extensive contours and sandhi forms in certain instances where junctures occur in the formal style.[3] Needless to say, a potential utterance may be spoken according to circumstances either in the formal style or in the informal style (which is somewhat faster than the former); occasionally, both styles are found mixed in longer utterances.

Isolated words cited in this paper are to be understood as bounded by pauses; Arapaho examples spanning more than one contour are written with spaces marking junctures. All distributional statements made below are in reference to the contour as the matrix.

1.2. The consonant phonemes of Arapaho comprise five stops (including one affricate), four spirants, one nasal,[4] and w and y. Employing five articulatory zones—labial, apical, frontal, dorsal, and faucal—one may tabulate the consonants as follows:

b	t	č	k	ʔ
	θ	s	x	h
		n		
w		y		

Their main allophones are listed below.

[1] I have had rewarding discussions on certain problems of analysis with David L. Olmsted and Floyd G. Lounsbury of Yale University, and to the latter I am indebted for the use of a speech stretcher for checking some of my recordings.

[2] According to the census of 1954, the total population of enrolled Arapaho Indians of the Wind River Reservation was 1,950, of whom 1,120 were full-blooded; some of the enrolled members of the tribe do not reside on the reservation.

[3] Thus, to cite at least one example, the very deliberately phrased (and hence formal in style) sequence néhé? hinén nonoohówoot núhú? hísein *this man sees this woman* corresponds in the informal style to néhé?inén nonoohówoot núhú?úsein; the loss of h illustrated above occurs regularly in instances where the cluster -?h- would otherwise be the outcome of the fusion of two contours.

[4] A second nasal, m, recorded exclusively in the loanword (or onomatopoetic form) múú *moo* clearly is to be excluded from the regular repertory of consonant phonemes.

The phoneme b[5] is a bilabial stop, voiced initially, intervocalically, and following another consonant; in the final position it is voiceless (occasionally unreleased). A corresponding voiced spirant [β] is rarely heard in free variation with [b] between vowels.

t is a voiceless dental stop, aspirated finally, and with markedly prolonged closure in intervocalic position after a short vowel associated with a high-pitch prosodeme.

k is a voiceless velar stop articulated according to the following vowel between the prevelar and mediovelar points; finally and as the first member of a cluster it has an aspirated, occasionally u-colored, allophone [$k^{cu>}$].

The glottal stop ʔ in the final position has an aspirated allophone which in emphatic speech is colored by the quality of the preceding vowel, thus producing an echolike effect.

The phoneme č is treated herein as a unit rather than a cluster; among the reasons for doing so is the total absence of initial consonant clusters in my material. č is a voiceless prepalatal affricate, slightly aspirated in final position and also as the first member of the cluster -čč-.

θ has a voiceless interdental spirant allophone in all positions.

s is a voiceless alveolar groove spirant; in final position and before the high front vowel it is frequently heard slightly palatalized; intervocalically after a short high-pitched vowel it is somewhat lengthened.

x is a voiceless velar spirant articulated according to the contiguous vowel between the prevelar and mediovelar points.

h is a glottal spirant; the tongue and lip position for its articulation approaches that of the following vowel; between vowels, a voiced or murmured allophone frequently is heard.[6]

The nasal n is a dental continuant, voiced nonfinally; the final allophone is voiceless or partially devoiced; intervocalically after a short high-pitched vowel n is somewhat lengthened.

The bilabial w and mediopalatal y each have two main allophones: a voiceless one in the final position and a voiced one elsewhere; the voiceless allophone of w is also heard in clusters before another consonant.

All these phonemes occur initially, intervocalically, and finally; examples may be found in section **1.6** under the following numbers:

b—initially: 8, 25, 26, 34, 42, 510, etc.
intervocalically: 7, 28, 70, 72, 436, etc.
finally: 68, 510, nééséb *my daughter-in-law*, bííθib *food*, etc.

t—initially: 18, 96, 115, 141, 156, etc.
intervocalically: 14, 19, 69, 472, 498, etc.
finally: 36, 62, 402, 409, 444, etc.

k—initially: 9, 46, 148, 183, 497, etc.
intervocalically: 44, 45, 419, 446, 463, etc.
finally: 9, 452, 511, hókok *soup*, etc.

ʔ—initially: ʔóó *yes* (*woman speaking*), ʔéé *yes* (*old w. sp.*)—the only examples in my material
intervocalically: 8, 10, 14, 437, 510, etc.
finally: 1, 3, 67, 72, 77, 159, etc.

č—initially: 16, 27, 32, 39, 85, etc.
intervocalically: 2, 21, 73, 452, 496, etc.
finally: 45, 57, 426, 467, 509, etc.

θ—initially: 50, 309, 426, 439, 494, etc.
intervocalically: 20, 22, 402, 479, 501, etc.

[5] The reasons for the symbol b (rather than p which some would undoubtedly prefer in view of the choice of symbols for the remainder of the stop series) are practical: b is the only stop which is performed initially and intervocalically with voice, thus phonetically approximating in the majority of its occurrences the English b.

[6] Both x and h participate as first members in numerous clusters. In certain clusters of this type the allophone of h phonetically approaches that of x. Since a considerable portion of my field notes is not backed up by wire recordings, I may occasionally be guilty of confusing the two phonemes.

finally: 53, 418, 435, 437, 473, etc.

s—initially: 57, 63, 102, 176, 177, etc.
intervocalically: 2, 26, 403, 460, 490, etc.
finally: 7, 302, 404, 411, 442, 460, etc.

x—initially: 161, 187, xoxonóú *right away*, etc.
intervocalically: 22, 72, 157, 468, 491, etc.
finally: 5, 88, 139, 414, 436, 471, etc.

h—initially: 1, 7, 13, 20, 21, etc.
intervocalically: 9, 10, 23, 25, 509, etc.
finally: 52, etc.

n—initially: 2, 10, 72, 77, 109, etc.
intervocalically: 1, 14, 21, 24, 401, etc.
finally: 20, 305, 429, 463, 485, 506, etc.

w—initially: 3, 4, 5, 19, 22, 30, etc.
intervocalically: 36, 67, 99, 178, 497, etc.
finally: wow *now*, hiwóókečííw *his cow*, etc.

y—initially: 126, 304, 305, 324, 325, etc.
intervocalically: 19, 32, 84, 126, 465, etc.
finally: 301, 406, etc.

Several minimally contrastive sets are offered below in conclusion of this section: bétee (*human*) *heart*, kétee *is it your heart?*, hétee *your heart*, nétee *my heart*; xooó *skunk*, hooó *porcupine*; čís *nighthawk*, hís (*human*) *liver*; hóto? *your nape*, nóto? *my nape*, wóto? (*human*) *nape*; béθ (*human*) *navel*, bés *wood*, bén *pus*; néb *fish*, néč *water*, né? *goose*, néθ *my navel*; nóto? *my nape*, nówo? *fish*. Note also níítoní *hear me* (*said to one person*) as against níítoní? *hear me!* (*said to more than one person*).

Clusters will be discussed in section **1.5.1.**

1.3. There are four vowel phonemes in Arapaho:

i u
e o

These vowels occur singly and in both identical and nonidentical clusters. They are found only medially and finally, thus contrasting with consonants which are found also initially.

The vowels are voiced and oral,[7] and their phonetic record shows some conditioned and some free variation within the ranges of tongue positions indicated below. i is high nonback unrounded; e is mid-low front unrounded, generally heard as low after b; u is high nonfront unrounded; o is mid-low nonfront slightly rounded, generally heard as low after b and w.

Minimally contrastive pairs for i : e, e : o, and o : u are hítii *his mouth* and hétii *your mouth*, héθ *dog* and hóθ *arrow*, and nih?óóθoo *spider* and nih?óóθou *spiders* respectively.

1.4. Every vowel phoneme in Arapaho is associated with one of two prosodemes; these are high level pitch and low level pitch. In the phonemic transcription hereinafter employed the former is marked by an acute accent and the latter is unmarked.[8] Apart from the difference in relative pitch,

[7] I consider it pertinent to make explicit mention of orality in view of Kroeber's remark (Arapaho Dialects, UCPAAE 12.79, 1916) that the Arapaho vowels ". . . evince fairly regular correspondences with those of other [Algonquian] dialects, though the cause of their most marked peculiarity, the frequent nasalization of ä and a, is not clear to the writer." Michelson remarks (Phonetic Shifts in Algonquian Languages, IJAL 8.133, 1935) that "nasal vowels are purely rhetorical save after a nasal consonant." Hilger (Arapaho Child Life and Its Cultural Background, BAE-B 148, p. 95) quotes Michelson as having told her in 1936 that scarcely any nasalities occur in Arapaho. My phonetic record is quite free of nasalized vowels except in a few cases where a vowel is immediately followed by n. Since there is no reason to doubt Kroeber's ear in this matter, we might well be dealing here with the loss of a stylistic feature during the last fifty years or so. Some of Kroeber's final nasalized vowels, however, may be accounted for in my analysis by the sequences VOWEL + n (whose contour-final allophone is voiceless).

[8] There may be occasional errors in the marking of pitch in instances where I draw on those of my 1949 field notes which are not supported by wire recordings.

the prosodeme of high pitch is further differentiated from that of low pitch by being correlated with greater loudness.

Each of the two contrastive levels of pitch is actualized in several variations. The exact extent to which these variations are free and to which they are positional is yet to be determined. Consequently, the two generalized statements which follow allow further refinement.

(a) Lower variants of either register, or both, are regularly heard in contour-final position. In phrases consisting of two or more contours the phrase-final variants are extra low, i.e., they are characterized by frequencies of glottal vibration which are relatively somewhat lower than those of variants of the contour-final position.

(b) Longer sequences of either register in positions other than those mentioned under (a) have frequently been observed with lower variants occurring within the sequence.

Lastly, it should be observed that occasionally a given morpheme—besides having automatic alternant shapes as to pitch—may freely vary as to pitch from speaker to speaker or even with one speaker at different times.

A phonetic transcription of an Arapaho phrase consisting of three contours is given below, with the observable pitch variations marked 6 through 4 for high and 3 through 1 for low: [nì^{3}h?ó$\cdot^{6-6}$θò$\cdot^{3-2}$ hé$\cdot^{6-6}$?ì^{3}x?ò$\cdot^{3-3}$wî^{6}-nì$\cdot^{3-3}$ hí^{5}s$\cdot$è^$\cdot^{2-2}$ nì$\cdot^{3-3}$čì$\cdot^{3-3}$ hé^{4}hà^$\cdot$'?^{c}] *White Man was walking down the river*; phonemically, this is written as nih?óóθoo héé?ix?oowúniihísee niičiihéhe?.

1.5.1. Consonant clusters in Arapaho are noninitial and consist of two members. Some are found medially within morphemes, others arise across morpheme boundaries, and still others result when short contours are consolidated into longer contours of less formal delivery. The following are examples of medial clusters:

-bk-: čéébkóóhut *he is running by*, etc.; -tb-: hóótbiiθíhnoo *I am going to eat*, etc.; -tt-: 489, etc.; -tk-: hóótko?úxowoo *I am going to cut something*, etc.; -ts-: 429, etc.; -tn-: yéín hóótníihinoo *I am going to count to 'four,'* etc.; -čč-: 155, etc.; -kč-: 206, etc.; -kθ-: 511, etc.; -ks-: 169, etc.; -kh-: 446, etc.; -?t-: 309, etc.;-?č-: 421, ?k-: nihi?kóóhu *run!* etc.;

-?s-: 175, etc.; -?n-: 93, etc.; -θk-: 28, etc.; -sč-: 87, 125, 487, etc.; -sk-: 47, 123, etc.; -sθ-: 461, 505, 507, etc.; -ss-: 410, 495, etc.; -sn-: 112, etc.; -xt-: 438, etc.; -xč-: 149, 207, etc.; -xk-: 75, 76, 408, 422, 427, etc.; -x?-: 3, 105, 109, 115, box?óoó *thunder*, etc.; -xθ-: 407, etc.; -xh-: 88, etc.; -xn-: wonóxno? *skins*, etc.; -xw-: 187, etc.; -hb-: hehbéteetoxúθi? wóókečii *ten cows*, etc.; -h?-: 9, 15, 29, 38, 52, 165, hih?óó *yes*, etc.; -hθ-: hehθíó?toxúθi? wóókečii *nine cows*, etc.; -hn-: hehníísootoxúθi? wóókečii *seven cows*, etc.; -hw-: 46, etc.; -hy-: hehyóóθoníθi? wóókečii *five cows*, etc.; -nt-: 426, 484, etc.; -nč-: 205, etc.; -nθ-: 4, 478, etc.; -ns-: 80, 174, etc.; -nn-: 92, 202, etc.; -wk-: 508, etc.

Additional medial clusters may be found in the following utterances (periods and spaces in or following the Arapaho text mark pauses and junctures respectively): héθθeneiθi?ókteesbííθhíítóóne?. *The dog is sitting under a table* (informal style).—héθteneesθi?ókut θí?okúútóóne?. *The dog is sitting on a chair* (inf. style).—héθnenéí? oohóóto? θí?okúútó?. *The dog is looking at a chair* (inf. style).—néhé?inén héé?ixteestóxu?ó hí?ooθ hohóótin. *This man put his leg on a tree to sharpen it.*—héé?ixse? isínen núhú?eeto tóxu?óho? hí?ooθ. *It [the tree] was lying where he was sharpening his leg.*—héé?ihyiisčéno?oo tóónkooxčéit. *He jumped toward one [buffalo].*—héé?ixxookbísei?í-noo?oo. *His leg went through.*—hoowúúni neihowbéi heeθéihók. *"No, I don't give it away," he said to him.*—héé?ihnóoθčéθéí?oo héé?ixčííteenínee. *He walked away without touching it.*—koohóótčiibiiθíhbee heeθoohók nih?óóθou. *"Do you care to eat, friend?" he asked White Man.*—nih?óóθou ne?niihnínískóhóehkóni? hiníísoo-

nínoo. *That is why white people switch their children.*—tóótheenéihoo heeθéihók. *"Where are you going?" she asked.*—heihowčííteíno? hinéno? neyeíh?e?. *"Men don't come into my tepee."*—héé?ix?iibéétoxbííθ. *He wanted to eat.*—beexóóθiih? hee?ixče?eniihenbíxoú? oo. *After a while he came out of the water.*—béénhéhé? héé?ihniiwoho?ún béésíbino. *He took a few plums with him.*—héé?ixθóuxóhu?uu núhú?wóxuusóóno. *He boiled the bear babies.*—héé?ihnonoθbii?ínee híčebéh?e?. *She soon found it near by.*—té?iyoonóh?o? héé?ix?oonóókooθtókxóno?. *The children ran scared to their homes.*—neihowtonóun núhú?ééniisoú? heehéxk wox. *"I don't use this kind [of wood],"* said the bear.—héé?-ixčííni? wo?ownihikóóhunó?. *They could not run any longer.*—hehnéétikotííno? nohheenésinééno? nih?óóθoo heehéxk. *"We are very tired and hungry," said White Man.*—héé?ihyííθečnéíhiinó? héétoxnókóhuníθ nih?-óóθoo. *They sent it [the mouse] over to where White Man slept.*

Consonant clusters of final position are few. The following have been attested:

-xt: 17, etc.; -xk: . . . heehéxk nih?óóθoo . . . *said the white man*, etc.; -h?: beexóóθiih? *a little later*, etc.

1.5.2. Vowel clusters are of two main types, those consisting of like vowels and those consisting of unlike vowels.

The clusters of the first type are dyadic and triadic. Since each vowel in Arapaho is associated with one of two prosodemes, a number of different arrangements are possible.

Two contiguous like vowels with like pitch constitute a long vowel, phonetically characterized by a single impulse of stress. Examples of contrastive pairs based solely upon the difference in quantity are hísi? *tick* : híísi? *day*, hó? *dirt* : hóó? *fie!*, and hóú *blanket* : hóúú *crow*. As against their short counterparts, the long high vowels are closer and tenser.

In the case of two contiguous like vowels with unlike pitch, the first vowel in the sequence V̌V is more sonorous and acts as the peak of the syllable; in the sequence VV̌, the two vowels are peaks of two separate syllables marked by a y-like or h-like transition in the case of i, and an h-like transition in the case of the other three vowels. There follow examples of vowel clusters consisting of like vowels:

íi: hinîiwóho? *his grandmother*, 104, etc.; íí: héénií *ants*, etc.; íií: híií [hi^{5}ĭ^{2}i^{4}] *snow*, etc.

ée: 15, etc.; eeé: heeé *yes (man sp.)*, etc.; éee: ho?éeet *clay*, etc.; éeé: 133, etc.

óo: 19, 32, etc.; oó: 35, etc.; óoó: hóoó [hó^{5}ŏ^{2}o^{4}] *bed*, etc.; ooó: 142, 161, etc.; óoo: 405, etc.

uú: seeníwuú *lizards*, etc.; úuú: wúuú *copulate!*, etc.

Clusters of unlike vowels consist of either two or three members, but do not involve more than two different phonemes. First, clusters of two unlike vowels are listed (and the different possibilities of pitch distribution considered):

ío: níí?ehío *bird (obv.)*, etc.; íó: 309a, etc.; eí: neíh?e *my son*, 79, etc.; éí: 4, etc.; ei: 27, etc.; eo: 502, etc.; óí: hóí *here!*, etc.; óé: 100, etc.; óú: hohóú *thank you!*, 22, etc.; oú: wó?oún *cat (voc.)*, 49, etc.; óu: 111, etc.; ou: 38, 123, etc.; uo: woxoθóú?uo *young bull (obv.)*, etc.; úó: nookuwúó *white buffalo (obv.)*, etc.

Examples of some vowel clusters consisting of three members follow here:

óee: 66, etc.; óóú: 407, etc.; óúú: 51, etc.; óuu: 98, etc.; oúú: 140, etc.; úúo: čéčinohúúo *chicken hawk (obv.)*, etc.

1.6. The forms listed below give an account of a few selected semantic areas of the Arapaho vocabulary insofar as they have been covered by my inquiries in the field. A more extensive contribution to the Arapaho lexicon will be published separately.

The Arapaho forms within each paragraph follow simple English equivalents arranged alphabetically, with the exception of numerals, which are listed consecutively. Colons mark cross references; thus, *blue-*

jay : *bluebird* should be read 'for the native term meaning *bluejay* see *bluebird*.'

ANIMALS: *ant* 1 hééni?; *antelope* 2 nisíče; *badger* 3 wox?óó?; *bat* 4 wosénθe?inéíhii; *bear* 5 wóx (see also *black bear*, *polar bear*); *bear cub* 6 wóxuusoo; *beaver* 7 hébes; *bedbug* 8 be?ítei; *bee* 9 kohóh?ok; *bird* 10 nii?éhii; *bird dog* 11 nii?éhiinéθ; *birdie* 12 níí?ehíhi?; *bitch* 13 hóxehíseinéθ; *black bear* 14 wo?otéénox; *blackbird* 15 nih?éeno?; *bluebird* 16 čenééteenii?éhii; *bluejay* : *bluebird*; *blue racer* 17 niixóóseht; *bobcat* 18 to?úúθii?éíbeexóókee; *buckskin* (*horse*) 19 wóótotóoyo?; *buffalo* (collectively; specifically as *herd of buffalo*) 20 hííθeinoon (see also *red buffalo*, *white buffalo*); *buffalo bull* 21 henéécee, *b. b.* (*less than two years old*) 22 woxoθóú?u; *buffalo calf* 23 níhoonóú?u; *buffalo cow* (*less than two years old*) 24 nónooni, *b. c.* (*very young*) 25 biihíhi?; *bug* 26 bíisee; *bulldog* 27 čé?i?einéθ; *bumblebee* 28 héébeθkohóh?ok; *butterfly* 29 níh?ootéíbee; *calf* 30 woo?, *c.* (*of a cow*) 31 wookéčiisoo; *camel* 32 čóó?otóoyo?; *canary* 33 nihóónii?ehíhi?; *cardinal* (*bird*) 34 bé?ii?éhii; *cat* 35 wó?ohó (see also *kitten*); *centipede* 36 hóówuhoo?otéét; *chickadee* 37 híčo?ooteehíhi?; *chicken* 38 nih?óóθounii?éhii (see also *cock*, *hen*); *chicken hawk* 39 čéčinóhuu; *chrysalis* 40 bíiseeniiθóóteeyoo; *cock* 41 híneníínii?éhii; *colt* 42 bíiyoθóú?u; *copperhead* 43 níibe?éé?eit síísííyéí; *cougar* 44 bexóókee; *cow* 45 wóókeč (see also *milker*, *red cow*); *coyote* 46 koo?oh(o)wúhu?; *crab* 47 níiskoséíhii; *crane* 48 hitéθoo; *cricket* 49 biihoút; *crocodile* 50 θeeθí?otóoyo?; *crow* 51 hóúú; *deer* 52 bíh?ih (see also *white-tailed deer*); *dog* 53 héθ (see also *bird dog*, *police dog*, *prairie dog*, *sheep dog*); *donkey* 54 téíθibíh?ihóóx; *draft horse* 55 hítoohóúnoox; *dragonfly* 56 číí?owoyéíhii; *duck* 57 síísiič; *duckling* 58 síísiičíísoo, 59 síísiikú?uusoo; *eagle* 60 heebéθii?éhii, nii?éhii (10), *e.* (*with white, black-tipped feathers*) 61 hinookóθonit; *elephant* 62 honóókowúúbeet, 63 séé?eteet; *elk* 64 hi(i)wóxuu; *ermine* 65 híseihonéhe?; *falcon* : *chicken hawk*; *firefly* 66 noh?óeeseihíhi?; *fish* 67 nówo?, 68 néb; *flea* 69 betéí; *fly* 70 nóúbee; *fox* 71 nóuhéhe? (see also *red fox*); *frog* 72 nóóxobe?; *gelding* (*horse*) 73 neečéés; *giraffe* 74 heenísono? wóxuuhóóx; *goat* 75 čó?oneewóxko?oneenóte?, 76 bíixoxkó?oneenóte? (see also *mountain goat*); *goose* 77 né?; *gosling* 78 né?iisoo; *grasshopper* 79 níh?oočeíhii; *green snake* 80 čenééteensíísííyéí; *grizzly* 81 nonóókunéseet; *grouse* 82 hóhe?iniičénee; *hare* 83 wóteteenóóku; *hawk* 84 hééyei, *h.* ('*small, brown, with pointed wings*') 85 čiičííhii (see also *red-tailed hawk*); *hen* 86 hiséínii?éhii; *honeybee* 87 niisísčootiikohóh?ok; *horse* 88 wóxhoox, 89 wóxuuhóóx, *h.* (*with black-tipped ears*) 90 wóóteteet, *h.* (*light gray*) 91 nonóókoxóú?eit, *h.* (*dark gray*) 92 wóó?oteennóókoxóú?eit (see also *buckskin* [*horse*], *draft horse*, *gelding*, *light horse*, *mare*, *pack horse*, *red horse*, *saddle horse*); *horsefly* 93 nííče?nóúbee; *hound* 94 θóúyi?einéθ; *hummingbird* 95 bé?ičeθeiníí?ehíhi?; *insect* : *bug*; *jaguar* : *mountain lion*; *killdeer* 96 tí?iihii; *kingfisher* 97 níínebeh?éeét; *kitten* 98 wo?óuusoo; *leech* 99 wóó?oowooθíibee; *light horse* 100 nonóókoxóéhit; *lion* 101 henéécéinéθ; *lizard* 102 seeníwoo; *locust* 103 híísoxóh?eihíí; *louse* : *flea*; *maggot* 104 hi?íisoo; *magpie* 105 woo?úx?ei; *mare* 106 hóxehísei; *meadow lark* 107 čooxúčenéíhii; *milker* (*cow*) 108 nííθouyoo; *mink* 109 no?éíx?i; *mockingbird* 110 nóókuθe?íneehíhi?; *mole* 111 nóučiitóóθeihii; *monkey* 112 bíísnih?óóθoo; *moose* 113 hinéni, 114 séé?iiníθeet; *mosquito* 115 tóx?úúbeihii; *moth* 116 hóhookéhe?; *mountain goat* 117 hóho?éniinóte?; *mountain lion* : *cougar*; *mouse* 118 hookúú, 119 hookúúhuhu? (see also *white mouse*); *mule* 120 bíh?ihoox; *muskrat* 121 hiixóxohúhu?; *nighthawk* 122 číís; *nightingale* 123 séskout; *opossum* 124 hetóxooninéíhii; *ostrich* 125 beesčénee; *otter* 126 yéíyi; *owl* 127 bééθei; *pack horse* 128 bíinoθéeenóóx, 129 hiníínoxuunóóx; *pack rat* 130 bééxookuu; *palomino* 131 nonookúsooninéét; *panther* : *cougar*; *parrot* 132 néénetiinii?éhii; *pelican* 133 héénebeh?éeét; *pheasant* 134 nih?óóθoučénee, 135 nééyookooθéít; *pig* 136 nih?óóθouwóx; *pigeon* 137 bííteih?íí;

pike 138 bííseenówo?; *polar bear* 139 nóókox; *police dog* 140 θoúúyeteenéθ; *pony* 141 téítoox; *porcupine* 142a hooó, 142b hóó; *prairie dog* (*large species*) 143 čooθóni?, *p. d.* (*small species*) 144 hóni?; *puma* : *cougar*; *quadruped* 145 čese?éhii; *quail* 146 čénee; *rabbit* 147 nóóku; *raccoon* 148 koketéénooninéíhii; *rat* : *pack rat*; *rattlesnake* 149 híínoxčéíneeyóónit (see also *timber rattlesnake*); *raven* : *crow*; *red buffalo* 150 bó?onóóke; *red cow* 151 bo?óókeč; *red fox* 152 beexóuu; *red horse* 153 bó?oonéét; *red-tailed hawk* 154 níhoonoθoyééhii; *robin* 155 heččésee; *saddle horse* 156 tééxokuunóóx, 157 tééxokúút; *sage hen* : *quail*; *salamander* 158 kóóhoyeit; *scorpion* : *centipede*; *sheep* 159 hóte? (see also *wool-bearing sheep*); *sheep dog* 160 hóteinéθ; *skunk* 161a xooó, 161b xóó; *snail* 162 wóó?oowooθííbeihii; *snake* 163 síísííyéí (see also *green snake*, *water snake*); *sparrow* 164 hečésii?ehíhi?, níí?ehíhi? (12); *spider* 165 nih?óóθoo; *squirrel* 166 nó?ouh?ú; *stallion* 167 nóhóo; *swallow* 168 bííteixoxóhuu; *swan* 169 nooksíísiič; *tapeworm* : *bug*; *tarantula* : *monkey*; *tick* 170 hísi?; *tiger* : *cougar*; *timber rattlesnake* 171 neeyéíčiihíínoxčéíneeyóónit; *turkey* : *quail*; *turtle* 172 be?énoo; *vulture* 173 héčesóhuu; *wasp* : *bee*; *water moccasin* 174 wó?oteensísííyéí; *water snake* 175 néči?síísííyéí; *water spaniel* 176 séé?eteenéθ, 177 sé?etéíhii; *weasel* : *ermine*; *white bear* : *polar bear*; *white buffalo* 178 nookúwuu; *white mouse* 179 nóókookuu; *white-tailed deer* 180 héθowooninéíhii; *wolf* 181 hóóxei; *woodchuck* 182 beexóni?; *woodpecker* (*'small, red-crowned, white and green around neck'*) 183 kookóóxee, *w.* (*'bigger, gray, red under wings—"red-bellied"'*) 184 beetéíbetee; *wool-bearing sheep* 185 čó?oneenóte?; *worm* 186 beexóúbíísee; *zebra* 187 xoxóóyixwóxuuhóóx.

COLORS: *black* 201 woo?óteeyóó?; *blue* : *green*; *brown* 202 wóó?oteenníhooyóó?; *gray* 203 nenííče?ee?; *green* 204 čeenééteeyoo?, *dark g.* 205 wóó?oteenčenééteeyoo?, *light g.* 206 nonóókčenééteeyoo?; *pink* 207 benixčeyóó?, 208 nonookúbe?ee?; *red* 209 béé?-ee?; *violet* 210 héétehíbe?ee?; *white* 211 nónoočóó?; *yellow* 212 nííhooyóó?.

NUMERALS: *one* 301a čéésey, 301b čeesey; *two* 302 níís(o); *three* 303a néeso, 303b néésó 303c néésó; *four* 304 yéín; *five* 305a yóóθón 305b yooθón; *six* 306 nííto; *seven* 307 nííso; *eight* 308 néeso(otox); *nine* 309a θíó?, 309b θío?tox, 309c θío?tóx; *ten* 310 béteetox; *eleven* 311 (béteetox) čeeséini?; *twelve* 312 (béteetox) níísiini?; *thirteen* 313 (béteetox) néésiini?; *fourteen* 314 (b.) yéíniini?; *fifteen* 315 (b.) yooθóniini?; *sixteen* 316 (b.) níítootóxuuni?; *seventeen* 317 (b.) níísootóxuuni?; *eighteen* 318 (b.) néésootóxuuni?; *nineteen* 319 (b.) θío?tóxuuni?; *twenty* 320 níísóó?; *twenty-one* 321 níísóó? čeeséini?; *twenty-two* 322 níísóó? níísiini?; *thirty* 323a néésoo?, 323b néesóó?; *forty* 324 yéíyóó?; *fifty* 325 yóóθoyoo?; *sixty* 326 níítootósoo?; *seventy* 327 níísootósoo?; *eighty* 328 néésootósoo?; *ninety* 329 θío?tósoo?; *one hundred* 330 béteetósoo?; *one hundred and one* 331 béteetósoo? čeeséini?; *one hundred and ten* 332 béteetósoo? čebéteetox; *one hundred and eleven* 333 béteetósoo? čebéteetox čeeséini?; *one hundred and twenty* 334 béteetósoo? čebíniisoo?; *one hundred and twenty-one* 335 béteetósoo? čebíniisoo? čeeséini?; *one hundred and thirty* 336 béteetósoo? čebíneesoo?; *two hundred* 337 níís béteetósoo?; *one thousand* 338 béteetox béteetósoo?.

BODY PARTS (both human and animal), including secretions and excretions:[9] *ankle* 401 wonó?; *anus* 402 béθit, 403 besóho; *arm* 404 bénes (see also *upper arm*); *back* (*above waist*) 405 wokóoo; *backbone* 406 wototóoy; *back of hand* 407 wokóóúxθééθoo; *beard* (*on chin*) 408 bííxoxko?ónoo; *beak* : *nose*; *belly* 409 wonót; *big toe* 410 bééssvé?; *bladder* 411 hinís; *blood* 412 bé?; *body* (*human*) 413 hineníteeyéí; *bone* 414 híx; *brain* 415 betééč; *breast* 416 béθen; *buttock* 417 híseičíí; *calf* (*of leg*) 418 či?íθ; *canine* (*tooth*) 419 héétóókúθ; *cheek* 420 bečé?i?óó; *chest* 421 béé?čéso?; *chin* 422 wotóxko?; *claw* : *nail*; *clitoris* 423 tónohoo; *clot* (*of*

[9] The majority of forms cited in this paragraph are dependent nouns, i.e., those which occur only in possessed form; they are listed here associated with the indefinite personal possessor prefix.

blood) 424 hinót; *collarbone* 425 beihóoo; *crown* (*of head*) 426 θoontéécˇ; *dimple* (*in chin*) 427 héto?óxko?ónoo; *ear* 428 wonotóno?; *elbow* 429 bétson; *eye* 430 besíiisé?; *eyebrow* 431 beníiisío?; *fat* 432 niinén; *feather* 433 bíyi; *feces* (*human*) 434 béé, *f.* (*animal*) 435 biihíθ; *flesh* (*scraped from hide*) 436 θebéx; *foot* 437 wó?ooθ, 438 se?íxtoo; *forefinger* 439 θíihoho; *forehead* 440 čó?oú?oo; *gall* 441 hiníihičˇ; *glans* (*penis*) 442 bó?os; *hair* (*on head*) 443 béíθe?éé; *hand* 444 béécˇét, 445 sé?iθééθoo (see also *back of hand*, *palm* [*of hand*]); *head* 446 hook(u)hú?ee, béíθe?éé (443); *heart* 447 bétee; *heel* 448 betíít; *hide* 449 hínotóyeičˇ, 450 wónotóyeičˇ, *h.* (*of buffalo*) 451 héécˇen; *hip* 452 wóče?ók; *hoof* 453 bí?ox, wó?ox (471); *horn* 454 hiníinis; *incisor* 455 béíčíθ; *index finger* : *forefinger*; *intestine* 456 hiθóóx; *joint* 457 čenííθise?; *kidney* 458 betííθiθ; *knee* 459 če?éítei; *leg* : *foot*; *lip* 460 béses; *little finger* 461 hečésθééθoo; *liver* 462 hís; *lung* 463a híkón, 463b híkon; *mane* 464 hísoonin; *marrow* 465 seyóót; *meat* 466 hoséino?; *milk* 467 beθéneˇ; *molar* 468 béexóókúθ; *mouth* 469 bétii; *mustache* 470 bíisetínoo; *nail* 471 wó?ox; *nape* 472 wóto?; *navel* 473 béθ; *neck* 474 bésonon; *nipple* : *breast*; *nose* 475 bé?is; *nostril* 476 béteenií; *palate* 477 wonóuo?; *palm* (*of hand*) 478 heté?éínθééθoo; *penis* 479 hoθóó, 480 beiθóó; *pimple* 481 čé?i?oo; *pubic hair* (*man's*) 482 bíisiyoo, *p. h.* (*woman's*) 483 bíisohoo; *pupil* 484 hinéntehe?; *pus* 485 bén; *quill* 486 hooníno?; *region between the breasts* 487 hisčóo; *rib* 488 hííčoo; *saliva* 489 wottóóθet; *scrotum* 490 kósoo; *shin* 491 wóxos; *shoulder* 492 béče?éénoo; *skin* 493 wonóx; *skull* 494 θííkoné?, hóókuhú?ee (446); *small toe* 495 hečéssé?; *stomach* 496 wóče?ót; *sweat* 497 kóúwo?oot; *tail* 498 betíhii, *t.* (*of bird*) 499 hínoɔkóóθ; *temple* 500 hiníiité?; *testicle* 501 beθéés; *thigh* 502 híčeobéé; *thighbone* 503 nóúteeyóó; *throat* 504 béitóo; *thumb* 505 béésθééθoo; *tongue* 506 beiθón; *tooth* : *incisor* (see also *canine*, *molar*); *tusk* : *canine*; *upper arm* 507 béésθeneeyóó; *uvula* 508 hótoowkúútoot; *vagina* 509 heheˇ; *vein* 510 bé?ib; *white* (*part of eyeball*) 511 nóókθeitóok; *whorl* (*of hair on top of head*) 512 neyóooxét; *wing* 513 hiθé?; *wrist* : *ankle*.

TONALLY DIFFERENTIATED ALLOMORPHS IN SOYALTEPEC MAZATEC

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0. Preliminary summary
1. Perturbation caused by morphemes with single tones
2. Perturbation caused by morphemes with tone clusters
3. Perturbation caused by position in the grammatical unit
4. Zero syllables with positive tone
5. Range of allomorphic tonal differentiation
6. Determination of basic allologs and basic allomorphs
7. Phonemic considerations

0. Soyaltepec Mazatec[1] has an extraordinarily complex system of tone sandhi. We list here a few of the striking characteristics, lest they get lost in the detail to follow:

(1) Morphemes with tone clusters[2] have progressive influence only; morphemes with single tones have regressive perturbing influence only (see **1** and note exception).

(2) When morphemes with single tones perturb the tone of another morpheme, they are not themselves perturbed; but when morphemes comprised of a syllable containing a tone cluster perturb the tone of another morpheme (see **2.2**), they themselves are reciprocally affected in their tonal content (except when causing the perturbation of a morpheme of allolog-class X and some of the word tone-sequences with 2 4).

(3) The phonemic height of a single-tone morpheme radically affects its perturbing characteristic: (a) Regressive perturbation which is caused by morphemes with tone 1 affects, exclusively, those morphemes which are within that same grammatical word (see **1.2**),[3] whereas progressive perturbation which is caused by morphemes with tone 1 affects, exclusively, those morphemes which are in a following word (see **1.3**). (The morphemes thus affected are members of allolog-class X and allologs with word tone-sequence 2 4.) (b) A morpheme with tone 2 has no perturbing influence whatever and, but for a small residue, allomorphs with tone 2 occur exclusively as

[1] Data for this paper were based on research in the spring of 1954 when on loan from the Summer Institute of Linguistics to the Instituto Nacional Indigenista of Mexico. The informant was Alberto Ruiz Clara, formerly of San Miguel Soyaltepec, Oaxaca, more recently of Chichicasapa, Oaxaca. He was moved to the latter location as part of the mass evacuation of 11,000 Mazatec Indians from the part of the Papaloapan basin which is being flooded by the Rio Tonto at the closing of the new Miguel Alemán dam.

[2] In this paper when two or more tones occur on the same syllable, I have chosen to use the term 'tone cluster' or 'syllable tone-sequence'. 'Word tone-sequence' is used of tones occurring on contiguous syllables within a grammatical word. A word tone-sequence may be comprised of noncontiguous single tones, or of single tones plus noncontiguous tone clusters, or of noncontiguous tone clusters.

[3] A grammatical word is made up of those morphemes which occur between a word space and a following hyphen, or between two word spaces if they are not interrupted by hyphen. A 'word' is made up of those morphemes occurring between word spaces. A word may be constituted of a grammatical word; otherwise the word is comprised of a grammatical word plus one or more enclitics. Such an extended word we call a 'phonological word' and it is comprised phonologically of a single stress group.

A grammatical word fills a unitary place in the syntax, and as such is moveable within the syntactic system, in contrast to the rigidity of order of its parts. A phonological word is also moveable as a unit within the syntax, but the enclitic is not as closely united grammatically or phonologically to the other components of the phonological word as the components of a grammatical word are united to each other.

the result of perturbations. (c) Morphemes with tones 3 or 4 cause regressive perturbation exclusively, and that perturbation is only of morphemes within the same grammatical word (see **1.1**).

(4) The analyst must take account of crisscrossing combinations: (a) of the particular tone of the morpheme which causes the perturbation, and (b) of the specific place of occurrence in some larger grammatical and/or phonological unit.

(5) The rules of this intricate sandhi system are astonishingly regular except for a small list of exceptions. Equally surprising is the fact that most of these exceptions occur in relationship to one class of allologs[4] which repeatedly act in an aberrant fashion,[5] either causing perturbation in a special way, or being perturbed outside the regular pattern. We have called this group of forms "allolog-class X", and it is comprised of those basic allologs which end with tone 1, except that allologs with the word tone sequence 4 1 are not members of that class. Undoubtedly allolog-class X will have some significance in historical reconstruction which is not yet apparent.

(5) The tone sandhi of Soyaltepec Mazatec comprises an elaborate system, whereas the tone sandhi which occurs in the related Huautla Mazatec[6] is limited to the morphemes which contiguously precede a few specific morphemes (see page 124 in Tone Languages). Although the two dialects are similar in that both have grammatical elements[7] differentiated by tone only, morphemes in Huautla Mazatec are, for the most part, comprised of one allomorph only, whereas in Soyaltepec Mazatec, due to tone sandhi, a high percentage of the morphemes are each comprised of three or four allomorphs thus differentiated by tone only.[8] It is interesting to notice the difference in the tone systems of two dialects[9]

[4] I have used the term 'allolog' to indicate one variant of a "grammatical word."

[5] The reader might like to have a list of these irregularities available at this point:

(a) The only environment in which single tones cause progressive perturbation is when preceding allolog-class X or when preceding allologs with word tone-sequence 2 4 (see **1.3** for the illustrations of the perturbation, and footnote 12 for explanation of space and hyphen between tone numbers). Furthermore the only morphemes with single tones to cause progressive perturbation are either members of allolog-class X, or members of a word tone-sequence 4 1.

(b) Morphemes with tone clusters are reciprocally perturbed except when causing the perturbation of allolog-class X and of some allologs with word tone-sequence 2 4 (see **2.1**);

(c) Perturbation of noncontiguous syllables is limited to syllables within allolog-class X (see **1.3**).

(d) Basic allomorphs with tones 3 or 4 are always perturbed when following tone clusters 3–2, 4–2, or 2–1, except (i) when a member of allolog-class X, (ii) a member of a larger allolog which has as one constituent a derived allolog of allolog-class X, (iii) a member of an allolog with word tone-sequence 4 1 (see **2.2.2.2**).

(e) The only allomorph which may cause a sequence of allomorphs to be perturbed is the final allomorph in an allolog of allolog-class X. This final allomorph of allolog-class X may cause a sequence of preceding allomorphs to be perturbed within that allolog (see **1.2**).

[6] For Mazatec, dialect of Huautla de Jiménez, see Kenneth L. Pike, Tone Languages, 95–165 (Ann Arbor, 1948).

[7] In Soyaltepec Mazatec: ǰi^{3}ni$^{3-4}$ *you eat,* ǰi^{4}ni^{4} *you will eat;* chwa^{3}-na^{1} *he gives me,* chwa$^{3-4}$-na$^{3-2}$ *I give him;* ǰ?a^{2}na^{4}čei^{4} *you deceive,* ǰ?a^{4}na^{4}čei^{4} *you will deceive.* The same words in the dialect of Huautla: čhi^{3}nai^{3} *you eat,* čhi^{4}nai^{4} *you will eat;* choa^{1}-na^{3} *he gives me,* choa^{3}-le^{4} *I give him;* ǰ?a^{2}na^{4}čai^{4} *you deceive,* ǰ?a^{4}na^{4}čai^{4} *you will deceive.* Also, ti^{1}vhi^{2}ka^{3}ko^{1}ya^{3}-le^{4} *he is in the process of going to teach him,* ti^{2}vhi^{3}ka^{3}ko$^{4-3}$ya^{3}-le$^{2-3}$ *I am in the process of going to teach you.*

[8] I have speculated on the possibility that the very heavy tone sandhi system which destroys the tonal contrast of many phrase pairs is the explanation of the fact that persons in Soyaltepec area do not carry on whistle-talk even though they are acquainted with the fact that whistle-talk is current in Huautla. See George M. Cowan, Mazateco Whistle Speech, Lg. 24.280–6 (1948).

[9] For a comparison of two dialects, both with systems of tone sandhi (instead of one of them with elaborate tone sandhi and one with practically no tone sandhi), see Cornelia Mak, A Comparison of Two Mixtec Tonemic Systems, IJAL 19.85–100 (1953).

which, according to the lexico-statistical analysis done by Sarah Gudschinsky,[10] have been separate dialects probably less than 1,000 years.

1. Only morphemes with single tones cause regressive perturbation and, except that tone 1 may cause progressive perturbation of allolog-class X, and of allologs with word tone-sequence 2 4, single tones cause perturbation within the grammatical word only.

1.1. Within a grammatical word, morphemes with tone 4 have a regressive influence which affects morphemes with tone 3 or tone 1; whereas morphemes with tone 3 affect morphemes with tone 1 only.

When preceding a morpheme with tone 4, a basic allomorph with tone 3 is replaced by an allomorph with tone 2. Note the following examples:[11] ša^{2}ʔe^{4} *his tiger* (ša^{3} *tiger*, -ʔe^{4} *his*); ni^{4}se^{2}ʔna^{4} *my bird* (ni^{4}se^{3} *bird*, -ʔna^{4} *my*); ca^{3}nka^{2}ho^{4} *he drives* [*an animal*] (ca^{3}nka^{3} *he runs*, -ho^{4} *with*); na^{3}-hñu^{2}ni^{4}ñu^{4} *napkin* or *tablecloth* (na^{3}hñu^{3} *cloth*, ni^{4}ñu^{4} *tortilla*).

A basic allomorph of tone 1 (except in the word tone-sequence 1 1 and 4 1, see **2.2.2.2**) is replaced by an allomorph of tone 2, when preceding a morpheme of tone 4 within a grammatical word: čʔa^{2}ʔe^{4} *his father-in-law* (čʔa^{1} *father-in-law*, -ʔe^{4} *his*); hwuei^{2}ho^{4} *he goes with* (hwuei^{1} *he goes*, -ho^{4} *with*); ñu^{3}me^{2}ʔna^{4} *my bumblebee* (ñu^{3}me^{1} *bumblebee*, -ʔna^{4} *my*).

In a word tone-sequence 4 1, an allomorph of tone 1 remains unchanged, even when preceding a morpheme of tone 4: na^{4}čʔa^{1}ʔna^{4} *my mother-in-law* (na^{4}čʔa^{1} *mother-in-law*, -ʔna^{4} *my*).

In a word tone-sequence 1 1, a basic allomorph of tone 1 is replaced by an allomorph of tone 3 when preceding a morpheme of tone 4: ya^{1}skų^{3}ʔna^{4} *my small stool* (ya^{1}skų^{1} *small stool*, -ʔna^{4} *my*).

When the tone cluster 2-4 appears on an allomorph,[12] the tone cluster is replaced by an allomorph with tone 2 when preceding a morpheme with tone 4 within the same grammatical word: či^{3}tu^{2}ʔna^{4} *my cat* (či^{3}tu$^{2-4}$ *cat*, -ʔna^{4} *my*); ra^{3}ša^{2}ʔe^{4} *his orange* (ra^{3}ša$^{2-4}$ *orange*, -ʔe^{4} *his*).

A basic allomorph with tone 1 is replaced by an allomorph with tone 2, when preceding a morpheme with tone 3 within the same grammatical word: cu^{2}ya^{3} *he explains* (cu^{1} *he says*, -ya^{3} *inside*); na^{3}hmi^{2}sa^{3} *yeast* (na^{3}hmi^{1} *thing*, są^{3} *sour*); hwa^{3}ña^{3}hwe^{2}ya^{3} *he sleeps in* [*something*] (hwa^{3}ña^{3}hwe^{1} *he sleeps*, -ya^{3} *inside*).

Allomorphs are accordingly replaced as follows[13] within the grammatical word: *3 + 4 > 2 4, *1 + 4 > 2 4, *1 + 3 > 2 3, *1 1 + 4 > 1 3 4, *2-4 + 4 > 2 4. Notice, however, that morphemes with tone 4 or tone 3 do not cause perturbation beyond the grammatical word of which they are a part: ška^{3}nta^{3}ča^{4} *the son-in-law is talking*; čʔa^{1}ča^{4} *the father-in-law is talking*; čʔa^{1} khwei^{3} *the father-in-law is going*; thi^{1}khyę^{1} ti^{4} *he is eating fish*; ki^{3}sa^{3}ku^{3}-re$^{2-4}$ ki^{4}šų^{4} *he found charcoal*; ni^{3}skwą$^{2-4}$-hni^{4} *we make* [*it*] *into powder*.

[10] Sarah Gudschinsky, Lexico-statistical Skewing from Dialect Borrowing, IJAL 21.138–149 (1955).

[11] Soyaltepec Mazatec has four phonemic tones, namely: tone 1, 2, 3, and 4. Tone 1 has the highest pitch, and tone 4 the lowest. The segmental phonemes of Soyaltepec Mazatec I have tentatively considered to be as follows: Stops and affricates p, t, c, č, č̣, k, ʔ; fricatives s, š, h; nasals m, n, ñ; lateral l; flap r; trill r̃; semi-vowels w, y; oral vowels i, e, a, o, u; nasal vowels į, ę, ą, ǫ, ų.

I am indebted to Sarah Gudschinsky for numerous vocabulary items, and I profited by discussions with her of the phonemic problems.

[12] When two numbers representing the abstracted tones of an allomorph or allolog are separated by a hyphen (for example 2-4), it indicates that the two tones occur on the same syllable and actualize as a glide from one tone to the other. When, however, the two tones occur on separate syllables, they are indicated in the formulas by a space (for example, 2 4).

[13] In the following tone formulas, basic allomorphs and/or basic allologs which have been united to make up a larger allolog are separated by a plus (+) sign.

1.2. Morphemes with tone 1 cause regressive perturbation within the grammatical word of which they are a part.

Allomorphs with tone clusters 2-1, 3-2, and tone 2 are replaced by allomorphs with tone 1 when preceding a morpheme with tone 1: ši^{3}ne^{1}chu^{1} *cracklings* (ši^{3}ne$^{2-1}$ *lard*, chu^{1} *toasted*); ni^{3}su^{1}hi^{1} *not a dipper* (ni^{3}su$^{3-2}$ *a dipper*, -hi^{1} *negative*); ya^{3}tyu^{1}hi^{1} *not a wooden beam* (ya^{3}tyu^{2} *a wooden beam*, -hi^{1} *negative*).

A morpheme with tone 1 causes not only the contiguous allomorph with tone clusters 2-1, 3-2, or tone 2 to be replaced by allomorphs with tone 1, but it causes a sequence of such allomorphs to be thus replaced: ya^{1}čą^{1}ʔǫ^{1} *forty-five*, (ya$^{2-1}$čą$^{2-1}$ *forty*, ʔǫ^{1} *five*); thi^{1}ci^{1}ša^{1}hi^{1} *he is not working* (thi$^{2-1}$ci$^{2-1}$ša$^{2-1}$ *he is working*, -hi^{1} *negative*); ntyu^{1}hwua^{1}ti^{1} *kerosene* (ntyu$^{2-1}$hwua$^{3-2}$ *water*, ti^{1} *it burns*).

Due to the fact that allomorphs with tone 1 cause allomorphs with tone clusters 2-1, 3-2, and with tone 2 to be replaced by allomorphs with tone 1, certain allomorphs which have contrasting tones in some environments are homophonous when preceding a morpheme with tone 1: thi^{1}te^{1} *he is dancing*, versus thi$^{2-1}$te$^{2-1}$ *he is piling* [*something*] *up*. But, thi^{1}te^{1}hi^{1} *he is not dancing*, and thi^{1}te^{1}hi^{1} *he is not piling* [*something*] *up*. Also, č?a^{1} *father-in-law*, versus č?a$^{2-1}$ *cargo*. But č?a^{1}hi^{1} *not a father-in-law*, and č?a^{1}hi^{1} *not cargo*. Also, the$^{3-2}$ *itch*, versus the$^{2-1}$ *rubbish*. But the^{1}hi^{1} *does not itch*, and the^{1}hi^{1} *not rubbish*.

An allomorph with the tone cluster 4-2 is replaced by the allomorph with the tone cluster 4-1, when immediately preceding a morpheme with tone 1: nče$^{4-1}$hi^{1} *not cooked corn* (nče$^{4-2}$ *cooked corn*, -hi^{1} *negative*).

Allomorphs are accordingly replaced as follows within the grammatical word: *2-1 + 1 > 1 1, *3-2 + 1 > 1 1, *2 + 1 > 1 1, *2-1 2-1 + 1 > 1 1 1, *4-2 + 1 > 4-1 1.

1.3. Basic allomorphs with tone 1, and those with tone cluster 3-1, also cause a progressive perturbation, but they influence only the following words; they cause no perturbation within the grammatical word of which they are a part. Basic allomorphs with tone cluster 2-1, in addition to the perturbation which will be described in **2**, cause the same type of progressive perturbation as do those with tone 1.

A word-final basic allolog with tone 1, or with tone clusters 2-1, or 3-1, influences progressively a contiguous allolog ending with tone 1, and causes it to be replaced by an allolog ending with the tone cluster 1-2 (unless that allolog ends with a word tone-sequence 4 1 which is never perturbed): ho^{1} thi^{1}cu$^{1-2}$ *he is saying 'two'* (ho^{1} *two*, thi^{1}cu^{1} *he is saying*); khi^{3}nti$^{3-1}$ ki^{3}te$^{1-2}$ *the baby danced* (khi^{3}nti$^{2-1}$ *baby*, ki^{3}te^{1} *he danced*); nta$^{3-1}$ thi^{1}khyę$^{1-2}$ *he is eating well.* (nta$^{3-1}$ *well*, thi^{1}khyę^{1} *he is eating*): ho^{1} č?a$^{1-2}$ *two fathers-in-law* (ho^{1} *two*, č?a^{1} *father-in-law*).

That a morpheme with tone 1 influences a morpheme in a following grammatical word, but does not influence a morpheme within the same grammatical word, is demonstrated by the following examples: In the first, there is one grammatical word only and the final morpheme still retains its basic allomorph (hma^{1} *black*). The second example is comprised of two grammatical words, and in it the morpheme with a word-final tone 1 (na^{3}hmi^{1} *a thing*) has caused the basic allomorph (hma^{1} *black*) in the second word to be replaced by the allomorph hma$^{1-2}$ *black*: na^{3}hmi^{1}hma^{1} *a specific black object*, na^{3}hmi^{1} hma$^{1-2}$ *a something black.*

A word-final basic allomorph with tone 1, or with the tone clusters 3-1 and 2-1, influences progressively a derived allomorph with tone 2 and causes it to be replaced by another derived allomorph with tone 3, if that derived allomorph is part of a word tone-sequence 2 4 and if its basic allomorph has tone 1 or tone cluster 3-2: nta$^{3-1}$ č?a^{3}ʔna^{4} *my father-in-law is good* (č?a^{2}ʔna^{4} *my father-in-law*, č?a^{1} *father-in-law*, -ʔna^{4} *my*); čhę$^{2-1}$ č?a^{3}ʔna^{4} *my father-in-law is needed*; te^{3}ho^{1} tu^{3}hña^{4} *twelve chili seeds* (tu^{2}hña^{4} *chili seed*, tu$^{3-2}$ *fruit* or *seed*, hña^{4} *chili*). See **2.2.2** for the replacement—

in a word tone-sequence 2 4—of those basic allomorphs which have tone 3.

Spanish loan words whose basic allologs have a word tone-sequence 2 4 are replaced by a derived allolog with a word tone-sequence 3 4 when following a word-final basic allomorph with tone 1, or tone clusters 3-1 or 2-1: re²su⁴ *Lorenzo*, hwa³hwe¹ re³su⁴ *Lorenzo sleeps*.

Allomorphs are accordingly replaced as follows[14] between grammatical words: *1 W 1 > 1 W 1-2, *1 W 1 1 > 1 W 1 1-2, *1 W 3 1 > 1 W 3 1-2, *3-1 W 1 > 3-1 W 1-2, *2-1 W 1 > 2-1 W 1-2; perturbation of word tone-sequence 2 4 whose first allomorph is basically tone 1 or tone cluster 3-2: *1 W 2 4 > 1 W 3 4, *2-1 W 2 4 > 2-1 W 3 4, *3-1 W 2 4 > 3-1 W 3 4.

2. We now come to the illustration of the manner in which morphemes with tone clusters exert their influence progressively only. Morphemes with tone clusters (in contrast to those with single tones) cause perturbation not only of morphemes within the grammatical word, but also of morphemes which are a part of the following word. And, morphemes with tone clusters, except when perturbing a morpheme of allolog-class X or some of the words with the word tone-sequence 2 4, are themselves reciprocally affected as they cause perturbation.

2.1. A morpheme with tone cluster 3-1 acts like a basic allomorph with tone 1, and a morpheme with tone clusters 2-1 does also when word final before a grammatical word ending in tone 1, that is, when word final before allolog-class X. See **1.3** for illustrations.

2.2.1. A morpheme whose basic allomorph has tone cluster 3-2, or 4-2 causes a following monosyllabic allolog with tone 3 to be replaced by an allolog with tone 2. A morpheme whose basic allomorph has tone cluster 2-1 causes a following monosyllabic allolog with tone 3 to be replaced by allolog with tone 1, and causes a word-final allomorph with tone 3 to be replaced by an allomorph with tone 2. Both monosyllabic allologs and word-final allomorphs with tone 4 are replaced by allomorphs with tone cluster 2-4 when preceded by morphemes whose basic allomorphs are tone clusters 3-2, 2-1, or 4-2.

Specifically, a morpheme whose basic allomorph has the tone cluster 3-2 causes a following monosyllabic allolog with tone 3 to be replaced by an allolog with tone 2. In such an environment, the basic allomorph with the tone cluster 3-2 is itself replaced by an allomorph with tone 3: nku³ cha² *one hand* (nku³⁻² *one*, cha³ *hand*); ce³hę³ hǫ² *the soldier is visible* (ce³hę³⁻² *it is visible*, hǫ³ *soldier*).

A morpheme whose basic allomorph has tone cluster 2-1 causes a following word-final allomorph with tone 3 to be replaced by an allomorph with tone 2, and a following monosyllabic allolog with tone 3 to be replaced by an allolog with tone 1. That is, if the following allomorph is part of the same grammatical word as the morpheme causing the perturbation, the allomorph is replaced by one with tone 2; if the following allomorph is a separate word, it is replaced by an allomorph with tone 1. In either of those environments, the morpheme whose basic allomorph has the tone cluster 2-1 is itself replaced by an allomorph with tone 3: ci³se² *he thickens* (ci²⁻¹- *he makes*, se³ *thick*); ma³ča³ ce¹ *Guavas grow* (ma³ča²⁻¹ *it grows*, ce³ *guava*).

A morpheme whose basic allomorph has the tone cluster 3-2 or 2-1 usually causes a following word-final allomorph or a monosyllabic allolog with tone 4 to be replaced by an allomorph[15] with tone cluster 2-4.

[14] In the following tone formulas, allologs are separated by W, which indicates word space.

[15] In my data there are several morphemes in an arbitrary subclass which do not follow this pattern. Namely, ya²hne⁴ *palm tree* (ya²⁻¹ *tree*, hne⁴ *palm*). Also, tu²hña⁴ *chili seed*, tu²na⁴ču⁴ *squash seed* (tu³⁻² *seed*, hña⁴ *chili*, na⁴ču⁴ *squash*). The morpheme ki³⁻²- *he went* is replaced by an allomorph with tone 2 in at least two examples: ki²ho⁴ *he went with*, ki²thę⁴ *it flew*. The morpheme

In such an environment, the basic allomorph with the tone cluster 3-2 or 2-1 is itself replaced by an allomorph with tone 3: nta^{3}-šką$^{2-4}$ *tears* (nta$^{2-1}$- *liquid*, šką^{4} *eyes*); tki^{3}-hni$^{2-4}$ *our exc. medicine* (tki$^{3-2}$ *medicine*, -hni^{4} *our exc.*); čhę^{3} ču$^{2-4}$ *animals are needed* (čhe$^{2-1}$ *it is needed*, ču^{4} *animal*); te^{3}nku^{3} ti$^{2-4}$ *eleven fish* (te^{3}nku$^{3-2}$ *eleven*, ti^{4} *fish*).

A basic allomorph with tone cluster 4-2 causes the same type of progressive perturbation as does a basic allomorph with tone cluster 3-2, but the basic allomorph with tone cluster 4-2 is itself replaced by an allomorph with tone 4: č$^{?}$ei^{4} ce^{2} *buy guavas!* (č$^{?}$ei$^{4-2}$ *take!* ce^{3} *guavas*); čhą^{4}hni$^{2-4}$ *our exc. women* (čhą$^{4-2}$ *woman*, -hni^{4} *our exc.*); č$^{?}$ei^{4} chu$^{2-4}$ *buy onions!* (č$^{?}$ei$^{4-2}$ *take!* chu^{4} *onions*).

Allomorphs are accordingly replaced as follows within the grammatical word: *2-1 + 3 > 3 2, *3-2 + 4 > 3 2-4, *2-1 + 4 > 3 2-4, *4-2 + 4 > 4 2-4; allologs are replaced as follows: *3-2 W 3 > 3 W 2, *2-1 W 3 > 3 W 1, *4-2 W 3 > 4 W 2, *3-2 W 4 > 3 W 2-4, *2-1 W 4 > 3 W 2-4, *4-2 W 4 > 4 W 2-4.

2.2.2.1. When a morpheme whose basic allomorph has a tone cluster 2-1 causes a word-medial allomorph to be perturbed, that word-medial allomorph is replaced by an allomorph with tone 2; when, however, a word-initial allomorph is perturbed, the word-initial allomorph is replaced by an allomorph with tone 1. That is, whenever a basic allomorph with tone cluster 2-1 causes an allomorph within the grammatical word to be perturbed, the latter allomorph is replaced by an allomorph with tone 2; whenever a basic allomorph with tone cluster 2-1 causes a word-initial allomorph of the following word to be perturbed, the latter allomorph is replaced by an allomorph with tone 1. Both word-medial allomorphs, and word-initial allomorphs are replaced by allomorphs with tone 2, when perturbed by morphemes whose basic allomorphs have tone cluster 3-2 or 4-2.

Specifically, except when a part of a non-perturbable word tone-sequence (see **2.2.2.2**), a word-medial morpheme whose basic allomorph has tone 3 or 4 is replaced by an allomorph with tone 2 when preceded by a morpheme whose basic allomorph has the tone cluster 3-2 or 2-1. The morpheme which caused the perturbation and whose basic allomorph has tone cluster 2-1 or 3-2 is itself replaced by an allomorph with tone 3: ca^{3}ki^{2}šų^{4} *a black caterpillar* (ca$^{2-1}$ *caterpillar*, ki^{4}šų^{4} *charcoal*); tu^{3}$^{?}$a^{2}ši$^{3-2}$ *candy* (tu$^{3-2}$ *fruit* or *seed*, $^{?}$a^{3}ši$^{3-2}$ *sweet*).

Similarly a word-initial morpheme whose basic allomorph has tone 3 or tone 4 is replaced by an allomorph with tone 2 when the last allomorph of the preceding word has a basic tone cluster 3-2 or 4-2, and is replaced by an allomorph with tone 1 when the last allomorph of the preceding word has a basic tone cluster 2-1. If the morpheme which caused the perturbation had a basic allomorph with tone cluster 2-1 or 3-2, it itself is replaced by an allomorph with tone 3. If the morpheme which caused the perturbation had a basic allomorph with tone cluster 4-2, it itself is replaced by an allomorph with tone 4: hį^{3} ni^{2}sę^{3} *eight rats* (hį$^{3-2}$ *eight*, ni^{3}sę^{3} *rat*); nče^{4} c$^{?}$a^{2}ce^{3} *she bought cooked corn* (nče$^{4-2}$ *cooked corn*, c$^{?}$a^{3}ce^{3} *she bought*); thį^{3} ni^{1}$^{?}$ya^{3} *there is a house* (thį$^{2-1}$ *is present*, ni^{3}$^{?}$ya^{3} *house*); ma^{3}ča^{3} šu^{1}ti^{4} *tomatoes grow* (ma^{3}ča$^{2-1}$ *it grows*, šu^{4}ti^{4} *tomatoes*); č$^{?}$ei^{4} ča^{2}kį$^{2-1}$ *buy firewood!* (č$^{?}$ei$^{4-2}$ *take!* ča^{3}kį$^{2-1}$ *firewood*).

A morpheme whose basic allomorph has tone cluster 2-1 causes perturbation of a word-initial basic allomorph with tone 3 even when, in the word tone-sequence 2 4, its derived allomorph has tone 2: thya^{2}$^{?}$na^{4} *my arm* (thya^{3} *arm*, -$^{?}$na^{4} *my*). That allomorph, when following a basic allomorph with tone cluster 2-1, is replaced by an al-

-$^{?}$na^{4} *my* and the morpheme -$^{?}$e^{4} *his* are replaced by allomorphs with tone 2 whenever they follow basic allomorphs with tone cluster 2-1, 3-2, or 4-2: ci^{3}ni^{3}$^{?}$na^{2} *my uncle* (ci^{3}ni$^{3-2}$ *uncle*); ku$^{2-1}$tu^{3}$^{?}$e^{2} *his toad* (ku$^{2-1}$tu$^{2-1}$ *toad*); čhų^{4}$^{?}$na^{2} *my wife* (čhų$^{4-2}$ *woman*).

lomorph with tone 1 in the same way that other basic allomorphs with tone 3 are replaced: nti^{3} thya^{1}ʔna^{4} *my arm is dirty* (nti$^{2-1}$ *dirty*). Those allologs with word tone-sequence 2 4 and whose word-initial morpheme has a basic allomorph with tone 3 retain the derived allomorph with tone 2 when following basic allomorphs with tone cluster 3-2 or 4-2, but the tone clusters are replaced by allomorphs with tone 3 and tone 4 respectively:[16] ši^{3}nku^{3} thya^{2}ʔna^{4} *my other arm* (ši^{3}nku$^{3-2}$ *the other*).

A word with the tone-sequence 4 2 4 is not comprised of basic allomorphs, in that the word-final morpheme with tone 4 has caused a basic allomorph with tone 3 to be replaced by an allomorph with tone 2 (see **1.1**): kha^{4}nta^{2}ʔna^{4} *my daughter-in-law* (kha^{4}-nta^{3} *daughter-in-law*). However, when following a morpheme whose basic allomorph has tone cluster 2-1, the word-initial basic allomorph is replaced by a derived one with tone 1, and the word-medial morpheme regains its basic allomorph with tone 3: ʔwe$^{2-1}$čhi^{3} kha^{1}nta^{3}ʔna^{4} *my daughter-in-law pays* (ʔwe$^{2-1}$čhi$^{2-1}$ *he pays*). Similar perturbation occurs following basic allomorphs with tone clusters 3-2 and 4-2, except that the first allomorph is replaced by an allomorph with tone 2, instead of one with tone 1: thi$^{2-1}$se^{3} kha^{2}nta^{3}ʔna^{4} *my daughter-in-law is singing* (thi$^{2-1}$se$^{3-2}$ *he is singing*).

If, when causing a following allomorph to be perturbed, the allomorph with tone cluster 2-1 is a part of a word tone-sequence 4 2-1, then it itself is replaced by an allomorph with tone 4: ti^{4}hi^{4} tha^{1}ce^{4} *a new bowl* (ti^{4}hi$^{2-1}$ *bowl*, tha^{4}ce^{4} *new*).

2.2.2.2. The fact that certain word tone-sequences may be nonperturbable makes for increased complications. This does not change any of the patterns which we have already discussed, but rather leads to problems where other patterns might have developed. Because of the nonperturbability of some word tone-sequences no formulae of changes was given at the end of **2.2.2.1**, in as much as for that particular section, the rules are so detailed that they do not lend themselves to brief summary.

Nonperturbability of some word tone-sequences gives rise to conflicting pressures, for basic allomorphs with tones 1, 3, or 4 are all perturbable in some environments; those same basic allomorphs, as well as basic allomorphs with tone clusters 3-1, 4-2, 3-2, 2-1, all cause perturbation in some environments.

The morphemes which usually cause perturbation fail to do so only when the allomorph to be replaced is part of a nonperturbable word tone-sequence:

(1) Allomorphs with tone 1 are never perturbed when in the word tone-sequence 4 1.

(2) Allomorphs with tone 3 or 4 are never perturbed[17] when in the word tone-sequences 3 1, 4 1, 3 2, 3 2 3, 3 2 2-1, 3 2 3-2, 3 2-4, 4 2-4.

(3) Some allomorphs in the word tone-sequence 3 2 4 are perturbable and some are not:

(a) If the allomorph with tone 3, in the word tone-sequence 3 2 4, has a basic allomorph with tone cluster 3-2 or 2-1, then that word tone-sequence is nonper-

[16] See **1.3** for description of allologs with a word tone-sequence of 2 4, but whose word-initial basic allomorph does not have tone 3.

[17] In one example a basic allolog with the word tone-sequence 3 1 has been replaced by an allolog which is completely nonpredictable. Namely, ču^{4}ʔa^{2}ni^{4} *a red parrot* (ču^{4} *animal*, ʔa^{3}ni^{1} *red*). According to the perturbation rules, we would have expected this word to be *ču^{4}ʔa^{3}ni^{1}. Compare this example with na^{4}čha^{4}ʔa^{3}ni^{1} *a mamey fruit* (na^{4}čha^{4} *banana*, ʔa^{3}ni^{1} *red*). It is interesting to notice that our informant reacted to this as an exception in the following manner, "If we pronounced this right it would be *ču^{4}ʔa^{3}ni^{1}, but nobody says it that way." Or when I forgot about the fact that the word was an exception and pronounced it with *ču^{4}ʔa^{3}ni^{1}, he would say, "That's right, but if you want to talk the way we do, you will say, ču^{4}ʔa^{2}ni^{4}." When we made mistakes at other points in the sandhi system, however, he consistently reacted quite differently—with no thought of apology he stated flatly that our pronunciation was wrong.

turbable. For example, in the word ʔę³ñu²ma⁴ *an Indian language* perturbation has already taken place. The tone formula for the perturbation is *2-1 + 4 4 > 3 2 4 (ʔę²⁻¹ *word*, ñu⁴ma⁴ *poor*), see **2.2.2.1**. Notice that the derived allomorph ʔę³- is not perturbed even when it follows a basic allomorph with tone cluster 2-1: wa³ku²⁻¹ ʔę³ñu²ma⁴ *he teaches an Indian language*.

(b) In words similar to ya³ʔwa²ʔna⁴ *my wooden meat hook*, two types of perturbation have already taken place within the grammatical word, and produced a derived tone-sequence which is nonperturbable. The tone formula for the first perturbation is *2-1 + 4 > 3 2-4 (see **2.2.1**) as in ya³ʔwa²⁻⁴ *wooden meat hook* (ya²⁻¹ *wood*, ʔwa⁴ *crooked*). The tone formula for the second perturbation is *3 2-4 + 4 > 3 2 4 (see **1.1**) as in ya³ʔwa²ʔna⁴ *my wooden meat hook* (ya³ʔwa²⁻⁴ *wooden meat hook*, -ʔna⁴ *my*). Notice that the derived allomorph ya³- is not perturbed even when it follows a basic allomorph with tone 2-1: čhę²⁻¹ ya³ʔwa²ʔna⁴ *my wooden meat hook is needed*.

(c) If, however, the word tone-sequence 3 2 4 is made up of morphemes whose basic allomorphs have tones *3 + 3 + 4 (see **1.1**), then the word tone-sequence is perturbable. For example the word na³hñu²ʔna⁴ *my cloth* can be perturbed because the word-initial morpheme has a basic allomorph with tone 3 (na³- *nominalizer*, -hñu³ *cloth*, -ʔna⁴ *my*). When following a morpheme whose basic allomorph has tone cluster 2-1, the basic allomorph na³- is replaced by na¹-, and the derived allomorph -hñu² is replaced by the basic allomorph -hñu³: chwa³ na¹-hñu³ʔna⁴ *he gives my cloth* (chwa²⁻¹ *he gives*, na³hñu²ʔna⁴ *my cloth*).

(d) If the second morpheme of those words with a word tone-sequence 3 2 4 has a basic allomorph with tone 1 (the tone formula, *3 1 + 4 > 3 2 4 as in **1.1**), then that word is also nonperturbable. For example, ʔi³ne²ho⁴ *she washed with* [*another person*] (ʔi³ne¹ *she washed*, -ho⁴ *with*). Such words are not perturbed even when following a basic allomorph with tone cluster 2-1: na³čhų²⁻¹ ʔi³ne²ho⁴ *she washed thread with* [*another person*].

(e) Other words with 3 2 4 tone-sequence which are nonperturbable are Spanish loan words, have only one allolog: ka³sti²ya⁴ *Spanish*.

2.2.3. In addition to the perturbations noted above, an enclitic allomorph may be replaced when it is perturbed by the final morpheme of the grammatical word which it follows.

For the most part the perturbation that occurs between the final morpheme of a grammatical word and an enclitic is the same as that which occurs between the morphemes of two grammatical words. The type of perturbation noted under **2.2.1** occurs between a grammatical word and the following enclitic: ci²⁻¹che³-na² *she cleans for me* (ci²⁻¹- *she makes*, che³⁻² *clean*, -na³ *it to me*); ma³ne³-na¹ *she washes for me* (ma³ne²⁻¹ *she washes*, -na³ *it to me*).

Also in **2.2.1** is described the replacement of a basic allomorph with tone 4 by a derived allomorph with tone cluster 2-4 when following a morpheme whose basic allomorph has tone cluster 3-2, 2-1, or 4-2. An example of the same type of perturbation occurring between a grammatical word and the following enclitic is: thį³-re²⁻⁴ *he has* (thį²⁻¹ *is present*, -re⁴ *it to him*). However, not all enclitic allomorphs with tone 4 are replaced by tone cluster 2-4 in those environments. Those enclitic allomorphs with tone 4 whose segmental phonemes consist of a vowel or of h plus vowel are replaced by an allomorph with tone 2: sa³-a² *this moon* (sa²⁻¹ *moon*, -a⁴ *this*); ku³ni³-i² *this monkey* (ku³ni³⁻² *monkey*, -i⁴ this); wa³ku³-hi² *you, emphasis, teach* (wa³ku²⁻¹- *to teach* -hi⁴ *you sg.*). Those enclitic allomorphs with tone 4 whose segmental phonemes contain a consonant other than h are replaced by an allomorph with tone cluster

2-4: ču^{4}cį^{4}-ra$^{2-4}$ *it is probably glass* (ču^{4}cį$^{2-1}$ *glass*, -ra^{4} *probably*); wa^{3}ku^{3}-hni$^{2-4}$ *we exc. teach* (wa^{3}ku$^{2-1}$- *to teach*, -hni^{4} *we exc.*).

There is an additional type of perturbation which occurs between a grammatical word and enclitic. Morphemes whose basic allomorphs have tone 1 and which occur word final in a grammatical word cause an enclitic allomorph with tone cluster 3-2 to be replaced by an allomorph with tone cluster 2-1: ni^{1}khyę^{1}-ni$^{2-1}$ *you feed me* (ni^{1}-khyę^{1}- *to feed*, -ni$^{3-2}$ *you for me*).

Morphemes whose basic allomorphs have tone cluster 2-1 and which occur final in a grammatical word, cause a following enclitic allomorph with tone cluster 3-2 to be replaced by an allomorph with tone cluster 2-1. In such an environment the morpheme whose basic allomorph has tone cluster 2-1 is itself replaced by an allomorph with tone 3: chwa^{3}-ña$^{2-1}$ *he gives us* (chwa$^{2-1}$ *he gives*, -ña$^{3-2}$ *it to us*). Perturbation occurs between enclitics in sequence: ca^{3}we^{1}-ra^{4}ni^{3}-re$^{2-4}$ *he is probably crazy* (ca^{3}we^{1} *crazy*, -ra^{4} *probably*, -ni$^{3-2}$ *is*, -re^{4} *it to him*).[18]

The perturbation which occurs between an enclitic and a following grammatical word, in some instances at least, is the same as that which occurs between two grammatical words: wa^{3}te^{3}-ri^{3} šu^{2}hų^{4} *he cuts paper for you* (wa^{3}te^{3} *he cuts*, -ri$^{3-2}$ *it to you*, šu^{4}hų^{4} *paper*).

3. Up to this point we have been discussing the relationship of the tones of one allomorph to the tones of another in sequence with it. Now however we come to a discussion of certain replacements of tonally different allomorphs which are caused exclusively by the relationship of the affected allomorph to its grammatical position. The replacement is made without reference to the specific tones in the immediate or remote environment: if the allomorph under consideration occurs phrase medially it is replaced, if it occurs phrase finally it is not replaced.

An allomorph with nonclustered tone 2 never occurs at the end of a word in phrase-medial position. At the end of a word, any allomorph with tone 2 is replaced by an allomorph with tone 1 when followed by another word. That is to say, a word-final allomorph with tone 2 is replaced by an allomorph with tone 1 phrase-medially: ci^{3}ni^{3}ʔna^{1} hwuei^{1} *my uncle goes*; but, hwuei^{1} ci^{3}ni^{3}ʔna^{2} *goes, my uncle*; si^{3}nka^{1} cʔa^{3}ce^{3} *a shirt, he bought*; but, cʔa^{3}ce^{3} si^{3}nka^{2} *he bought a shirt.*

An allomorph with tone cluster 3-2 or 4-2 is replaced by an allomorph with tone cluster 3-1 or 4-1 whenever it occurs phrase medially unless it causes the following allomorph to be perturbed (see **2.2** for description of perturbations caused by such tone

[18] Since collecting the data in the spring of 1954 no informant has been available. If or when another informant is available I would like to ascertain the following:

(1) What kind of sandhi occurs between two enclitics in sequence—is it the same as the sandhi which occurs between two grammatical words, the same as occurs between two phonological words, or is it different from both?

(2) What type of perturbation is caused by a derived enclitic allomorph with tone cluster 2–1 (its basic allomorph has tone cluster 3–2)—does it cause perturbation like a basic allomorph with tone cluster 2–1, or does it cause perturbation like a basic allomorph with tone cluster 3–2?

(3) Does the nonperturbing influence of a morpheme with tone 1 extend beyond word borders, that is, is the first word perturbable in a sequence of two words with tone 3 and tone 1 respectively?

(4) It has already been ascertained that a morpheme with tone 3 in a word tone-sequence 3 1 is nonperturbable (see **2.2.2.2**). Is the first morpheme with tone 3 in the word tone-sequence 3 3 1 also perturbable? That is, does that irregularity of allolog-class X include words of three or more syllables, or only words of two syllables?

(5) Is an allolog of class X perturbed the same way when preceding hyphen as when preceding word space?

(6) What perturbations occur when three allologs of class X occur in sequence (for two allologs of class X in sequence, see **1.3**)?

clusters): ką$^{3-1}$ cu^{1} *twenty, he says* (ką$^{3-2}$ *twenty*, cu^{1} *he says*); hǫ$^{3-1}$ nte$^{2-1}$ *six shoes* (hǫ$^{3-2}$ *six*, nte$^{2-1}$ *shoes*); hį$^{3-1}$ ñu^{3}me^{1} *eight bumblebees* (hį$^{3-2}$ *eight*, ñu^{3}me^{1} *bumblebees*). But the allomorphs with tone cluster 3-2 or 4-2 which occur phrase finally keep their basic forms: ca^{3}khyę^{1} hǫ$^{3-2}$ *he ate six.*

4. A few morphemes have a zero syllable with positive tone. The zero syllable has no segmental phonemes, but tone only. This tone is actualized as part of a tone cluster on the last syllable of the preceding morpheme. If, however, the preceding morpheme has the same tone as that of the zero syllable, then that tone does not receive a separate actualization.

Only a few morphemes have such a zero syllable, among them are: -^{4}ri^{3} *your, sg.*, and -^{4}či$^{2-1}$ *small.* Examples of these in combination with other morphemes: ca$^{3-4}$ri^{3} *your pocket* (ca^{3} *pocket*); tǫ$^{4-3-4}$ri^{3} *your money* (tǫ$^{4-3}$ *money*); ti$^{3-4}$či$^{2-1}$ *little boy* (ti^{3} *boy*); ti^{4}či$^{2-1}$ *little fish* (ti^{4} *fish*). (In this last example, because *fish* has tone 4, the zero syllable is not actualized.) A clue for considering that morphemes with zero syllables might be broken down disyllabic forms[19] is the fact that the morpheme -^{4}či$^{2-1}$ may actualize as ʔi^{4}či$^{2-1}$ in isolation or in slow speech.

When a zero syllable with positive tone follows a basic allomorph of tone cluster 2-1, the basic allomorph with tone cluster 2-1 is itself replaced by an allomorph with tone 3 (see **2.2**), and the zero syllable is probably perturbed. When the morpheme -^{4}ri^{3} follows a morpheme with basic 2-1, I have tentatively written the derived allomorph as -ri$^{2-3}$, as in ška^{3}ri$^{2-3}$ *your trousers* (ška$^{2-1}$ *trousers*, -^{4}ri^{3} *your, sg.*). The phonemic data at this point, however, needs further checking, though it is clearly in contrast with the following: ška$^{3-4}$ri^{3} *your lizard* (ška^{3} *lizard*), ku^{3}ni$^{3-2}$ *monkey*, tʔe^{3}hni^{2} *leave it!*

[19] Tone clusters of three tones, for example 4-3-4, occur only across a morpheme border. Specifically, in Soyaltepec Mazatec, they occur as a result of fusion between two morphemes, one of which has an allomorph comprised of a zero syllable with positive tone: na^{4-3-4}ri^{3} *your mother* (na$^{4-3}$ *mother*, -^{4}ri^{3} *your*).

5. Due to perturbation, most of the morphemes are comprised of three or four allomorphs; these are differentiated from one another by tone only. Since the range of changes cannot be readily abstracted from the preceding sections, we summarize here the allomorphs comprising the various classes of morphemes, even though doing so does not specifically advance the statement of the patterns of change as such. (There are other derived allomorphs which differ by nasalization, etc., but these will not be discussed in this paper.)

A morpheme whose basic allomorph has tone 1 may have derived allomorphs with tone 2, tone 3, and tone cluster 1-2: č^{1}ʔa^{1} *father-in-law* (basic allomorph); č^{1}ʔa^{2}ʔe^{4} *his father-in-law* (-ʔe^{4} *his*); ho^{1} č^{1}ʔa^{3}ʔe^{4} *two of their fathers-in-law* (ho^{1} *two*); ho^{1} č^{1}ʔa$^{1-2}$ *two fathers-in-law*).

A morpheme whose basic allomorph has tone 2 may have a derived allomorph with tone 1: thyą^{2} *there* [*standing*] (basic allomorph); thyą^{1}hį^{1} *not there* [*standing*] (-hį^{1} *negative*).

A morpheme whose basic allomorph has tone 3 may have derived allomorphs with tone 2 and tone 1: se^{3} *thick* (basic allomorph); ci^{3}se^{2} *she thickens* [*something*] (ci$^{2-1}$- *to make*); ci^{3}se^{1}hi^{1} *she doesn't thicken* [*something*] (-hi^{1} *negative*).

A morpheme whose basic allomorph has tone 4 may have derived allomorphs with tone 2, tone 1, and with tone cluster 2-4: cha^{4} *hair* (basic allomorph); nku^{3} cha^{2}šku^{4} *one eyelash* (nku$^{3-2}$ *one*, šku^{4} *eye*); thį^{3} cha^{1}šku^{4} *there are eyelashes* (thį$^{2-1}$ *is present*); nku^{3} cha$^{2-4}$ *one hair* (nku$^{3-2}$ *one*).

A morpheme whose basic allomorph has tone cluster 2-1 may have derived allomorphs with tone 1, tone 3, and tone 4: ya$^{2-1}$ *wood* (basic allomorph); ya^{1}hi^{1} *not wood* (-hi^{1} *negative*); ya^{3}ʔwa$^{2-4}$ *wooden meat*

hook (ʔwa^{4} *crooked*); na^{4}ce^{4}hni$^{2-4}$ *our exc. rabbit* (from the basic allomorphs na^{4}ce$^{2-1}$ *rabbit*, and -hni^{4} *our, exc.*).

A morpheme whose basic allomorph has tone cluster 3-2 may have derived allomorphs with tone 3, tone 1, and tone cluster 3-1: nku$^{3-2}$ *one* (basic allomorph); nku^{3} ša^{2} *one tiger* (ša^{3} *tiger*); nku^{1}hi^{1} *not one* (-hi^{1} *negative*); nku$^{3-1}$ na^{3}hmi^{1} *one thing* (na^{3}hmi^{1} *thing*).

A morpheme whose basic allomorph has tone cluster 4-2 may have derived allomorphs with tone 4, and tone cluster 4-1: čhų$^{4-2}$ *woman* (basic allomorph): čhų^{4}hni$^{2-4}$ *our women* (-hni^{4} *our exc.*); čhų$^{4-1}$hį^{1} *not a woman* (-hį^{1} *negative*).

6. We have chosen to consider as basic those allologs or allomorphs which serve as the most convenient base for predicting the resultant forms. In this language, any allolog observed in isolation is thereby known to be the basic form of that allolog. However, neither all allomorphs, nor all allologs, occur in isolation, and the fact that an allomorph is basic must be known by some criteria other than its isolatability. The criteria for allomorphs are the following:

(1) If the environment of the observed allomorph is such that none of the perturbation rules of **1, 2,** and **3** could have caused a basic allomorph to be replaced by a derived allomorph with the tone as that of the observed allomorph, then the analyst can know that the observed allomorph must be the basic one.

(2) If the environment of the observed allomorph is such that no basic allomorph of that tone ever occurs there, then the analyst knows that the form cannot itself be basic.

(3) If, due to the perturbation rules described in **1, 2,** and **3,** it is seen that the observed allomorph cannot be basic, those same rules may indicate the basic allomorph from which the observed allomorph was derived. At times, however, when the perturbation rules of **1, 2,** and **3,** are applied to one cited form at a time it cannot be determined which of several possible allomorphs might be the basic one. When, however, the same morpheme can be observed in several environments, even though one of those environments does not include isolation, the basic allomorph can usually be determined.

6.1. We now indicate, by looking at the cited forms, how to determine whether or not the allomorphs or allologs being observed at any one moment are the basic ones:

(1) If an allolog is observed in isolation, the analyst can know that it is the basic form of that allolog: ti^{4}yi$^{2-1}$ *run!*

(2) An allolog occurring phrase final after a word which ends in tone 3 or tone 4 is known to be the basic allolog: ki^{3}cu^{1}-re^{4} nču^{3}khwą^{2}ʔę^{4} *he told his aunt.*

(3) An allolog occurring in isolation and comprised of a single allomorph represents also the basic form of that allomorph; but an allolog comprised of two allomorphs in sequence is not necessarily comprised of the basic forms of those morphemes. For example: čʔą^{3}ya^{2} *cool* is the basic allolog, but the basic allomorphs are čʔą$^{2-1}$ *cold,* -ya^{3} *inside.*

(4) The basic allomorph is also the one which occurs as the last syllable of a phrase-final grammatical word, unless that allomorph has tone 2, or unless it has the tone cluster 2-4. If the phrase-final allomorph of a polysyllabic allolog has tone 2, then its basic allomorph has tone 3; if the phrase-final allomorph of the polysyllabic allolog of native origin has a tone cluster 2-4, then its basic allomorph has tone 4: ho^{1}-ma^{3} thya^{4}wa^{4}nte$^{2-1}$ *there are two sandals*; ho^{1} ci^{3}kʔyę^{2} *he kills two* (ci$^{2-1}$- *to make,* kʔyę^{3} *dead*); me^{3}hę^{1}-re^{4} ča^{3}kį^{3}hni$^{2-4}$ *he wants our firewood* (ča^{3}kį$^{2-1}$ *firewood,* -hni^{4} *our exc.*).

(5) Within a basic allolog, allomorphs with tone clusters 2-1, 3-2, 4-3, 3-1 are known to be the basic allomorphs: ñu^{4}hma$^{2-1}$ *beans*; ki^{3}ce$^{3-2}$ *full*; tǫ$^{4-3}$ *money*; ti^{4}ntai$^{3-1}$ *make it!*

(6) Within a basic allolog, an allomorph

with the tone cluster 4-1 is a member of the morpheme whose basic allomorph has the tone cluster 4-2: čhų$^{4-1}$hį^{1} *not a woman*. An allomorph with the tone cluster 1–2 is a member of a morpheme whose basic allomorph has tone 1: ho^{1} thi^{1}cu$^{1-2}$ *he says two* (ho^{1} *two*, thi^{1}cu^{1} *he says*).

(7) Within a basic allolog, an allomorph with the tone cluster 4-2 is the basic allomorph unless followed by an allomorph with tone 4; in the latter environment the basic allomorph of the morpheme has the tone cluster 4-3: na$^{4-2}$ʔę^{4} *his mother* (na$^{4-3}$ *mother*, -ʔę^{4} *his*).

(8) Within a basic allolog, an allomorph with tone 1 is usually basic. However, if the allomorph is part of a word tone-sequence 1 1, then the basic form of the first allomorph with tone 1 is indeterminate but the basic allomorph must have one of the following three tonal elements. The basic allomorph must have either tone cluster 3-2, 2-1, or the allomorph with tone 1 may actually be the basic one: hwi^{1}hwi^{1} *very slowly* (hwi^{1} *slowly*): tki^{1}hi^{1} *not medicine* (tki$^{3-2}$ *medicine*, -hi^{1} *negative*); thi^{1}te^{1} *he is dancing* (thi$^{2-1}$- *continuative*, te^{1} *he dances*).

(9) Within a basic allolog, an allomorph with tone 2 is known to be the basic allomorph only if it occurs in isolation in words of one syllable, that is, only if it is elsewhere seen as a basic allolog. Thus far my data contains only two basic allomorphs with tone 2: thyą^{2} *there* [*standing*]; syą^{2} *there* [*sitting*]. Usually when an allomorph with tone 2 occurs medially in an allolog, the basic allomorph of that morpheme is indeterminate. The basic allomorph may have either tone 1, tone 3, or tone 4: na^{3}hmi^{2}-ʔna^{4} *my thing* (na^{3}hmi^{1} *thing*, -ʔna^{4} *my*); ni^{3}tha^{2}ʔna^{4} *my hat* (ni^{3}tha^{3} *hat*, -ʔna^{4} *my*); ca^{3}ki^{2}šų^{4} *a certain black caterpillar* (ca$^{2-1}$ *caterpillar*, ki^{4}šų^{4} *charcoal*).

(10) Within a basic allolog, an allomorph with tone 3 is known to be the basic allomorph unless followed by an allomorph with tone 2. In that environment the basic allomorph of the first morpheme is indeterminate. It may have either tone cluster 3-2 or 2-1, or the allomorph with tone 3 may be the basic one: na^{3}hmi^{2}są^{3} *yeast* (na^{3}hmi^{1} *thing*, są^{3} *sour*); tu^{3}ʔa^{2}ši$^{3-2}$ *candy*, (tu$^{3-2}$ *fruit* or *seed*, ʔa^{3}ši$^{3-2}$ *sweet*); ša^{3}wa^{2}sę^{3} *townwork*, ša$^{2-1}$ *work*, wa^{3}sę^{3} *common*, *half*).

(11) An allomorph with tone 4 is known to be the basic allomorph, except when it is a part of the word tone-sequence 4 2, or 4 4 2. In the word tone-sequence 4 2, the basic allomorph of the first morpheme has the tone cluster 4-2: čhų^{4}ʔę^{2} *his wife* (čhų$^{4-2}$ *woman*, -ʔę^{4} *his*). When an allomorph with tone 4 is part of the word tone-sequence 4 4 2, the basic allomorph of the second syllable is indeterminate. It may have either the tone cluster 3-2, or the tone cluster 2-1: ñu^{4}hma^{4}-ʔę^{2} *his beans* (ñu^{4}hma$^{2-1}$ *bean*, -ʔę^{4} *his*); ču^{4}ntu^{4}ʔe^{2} *his worm* (ču^{4}ntu$^{4-2}$ *worm*, -ʔe^{4} *his*). In the word tone-sequence 4 2 4, however, both allomorphs with tone 4 are basic: kha^{4}nta^{2}ʔna^{4} *my daughter-in-law* (kha^{4}nta^{3} *daughter-in-law*, -ʔna^{4} *my*).

6.2. We now indicate how to determine whether or not the observed enclitic allomorphs are also the basic ones:

(1) Any enclitic allomorph occurring phrase finally following a grammatical word with tone 4 or with tone 3 is known to be the basic form of that allomorph: yu^{3}-re^{4} *he is willing*.

(2) Enclitic allomorphs with tone 4, tone 3 or the tone cluster 3-2 are known to be the basic allomorphs of those respective morphemes: nta$^{3-1}$-ra^{4} *it is probably good* (nta$^{3-1}$ *good*, -ra^{4} *probably*); ni^{4}nta^{4}-a^{4} *this fox* (ni^{4}nta^{4} *fox*, -a^{4} *this*); he^{3}-ma^{3} *it is big* (he^{3} *big*, -ma^{3} ?); ʔwa^{3}ce^{3}-ra$^{3-2}$ *I will buy* [*it*] *for you* (ʔwa^{3}ce^{3}- suppletive stem *buy*, -ra$^{3-2}$ *I to you*); wa^{3}te^{3}-ri$^{3-2}$ *he cuts for you* (wa^{3}te^{3} *he cuts*, -ri$^{3-2}$ *it to you*).

(3) Enclitic allomorphs with tone 2 are always known to be derived allomorphs. The basic allomorphs of those morphemes have tone 4 if the enclitic morpheme consists of a vowel, or of h plus vowel (see **2.2.3**): ntu^{4}ya^{4}-o^{2} *that jail* (ntu^{4}ya$^{2-1}$ *jail*, -o^{4} *that*); wa^{4}ku^{3}-hi^{2} *you teach* (wa^{3}ku$^{2-1}$- *to teach*,

-hi^{4} *you*). If the enclitic morpheme contains a consonant other than h, then its basic allomorph has tone 3: ci$^{2-1}$che^{3}-na^{2} *she cleans for me* (ci$^{2-1}$che$^{3-2}$ *she cleans*, -na^{3} *it to me*).

(4) Enclitic allomorphs with the tone cluster 2–4 are never the basic allomorphs; the basic allomorphs of those morphemes are known to have tone 4. They follow morphemes whose basic allologs end in the tone cluster 2-1, 3-2, or 4-2: chwa^{3}-re$^{2-4}$ *he gave it to him* (chwa$^{2-1}$ *he gives*, -re^{4} *it to him*); this contrasts with chwa^{3}-re^{4} *he is happy* (chwa^{3} *happy*, -re^{4} *it to him*), ču^{4}ntu^{4}-ra$^{2-4}$ *probably a worm* (ču^{4}ntu$^{3-2}$ *worm*, -ra^{4} *probably*).

(5) An enclitic allomorph with tone 1 is known to be the basic form, unless following a morpheme whose basic form has the tone cluster 2-1. In that environment the enclitic allomorph with tone 1 is known to be a derived allomorph, and the basic allomorph of that morpheme has tone 3: kwi^{3}-ce^{1} *just this* (kwi^{3} *this*, -ce^{1} *emphasis*); thị^{3}-na^{1} *I have* (thị$^{2-1}$ *is present*, -na^{3} *it to me*).

(6) An enclitic allomorph with tone cluster 2-1 in my data is known to be a derived allomorph whose basic allomorph has tone cluster 3-2. A derived enclitic allomorph with tone cluster 2-1 follows a morpheme whose basic allomorph has tone 1, tone cluster 2-1, or the tone cluster 3-1: yu^{3}hi^{1}-ri$^{2-1}$ *you do not want* (yu^{3}hi^{1} *does not want*, -ri$^{3-2}$ *it to you*); wa^{3}te^{3}-ri$^{2-1}$ *he thatches for you* (wa^{3}te$^{2-1}$ *he thatches*, -ri$^{3-2}$ *it to you*); ti^{4}ntai$^{3-1}$ -ni$^{2-1}$ *make* [*it*] *for me!* (ti^{4}ntai$^{3-1}$ *make it!* -ni$^{3-2}$ *you to me*). It may be that with more data enclitic allomorphs may be found whose basic allomorphs have tone cluster 2-1.

7.1. So far, we have assumed that four tone levels are phonemic. The technical proof of the four phonemic levels is seriously complicated by the fact that the morphophonemic changes interfere with many potential contrasts. See my article which is applicable here, Problems in Zapotec Tone Analysis, IJAL 14.161–70 (1948).

Many pairs of words in Soyaltepec Mazatec are differentiated by tone only, although none of our sets include minimal differences between all four single tones. In order to show the various tone contrasts, we have included words which have the relevant tone for a set but which also have changes in segmental phonemes: na^{4}č$^{?}$a^{1} *mother-in-law*, nče$^{4?}$na^{2} *my cooked corn*, ni$^{4?}$yu$^{2-1}$ *fierce*, ni$^{3?}$yu^{3} *gopher*, ni$^{4?}$yu^{3} *ant*, na$^{4?}$yu^{4} *corn dough*; na$^{3?}$ya$^{2-1}$ *thorn*, na$^{4?}$ya^{3} *a net*; ce$^{3?}$e^{1} *lazy*, ce$^{4?}$e^{4} *his*; te^{3}ya$^{2-1}$ *wide*, te^{3}ya$^{3-2}$ *deaf*, wa^{3}ya^{2} *she makes* [*tortillas*]; swe^{1} *hot*, syą^{2} *there* [*sitting*], ša$^{2-1}$ *work*, ša^{3} *tiger*, ša^{4} *dew*; te^{1} *he dances*, te$^{2-1}$ *wide*, te^{3} *ten*; the$^{2-1}$ *rubbish*, the$^{3-2}$ *a cough*, thyą^{2} *there* [*standing*], the^{4} *a plant*; chu^{1} *toasted*, chu$^{2-1}$ *grave*, chu^{4} *onion*; ce^{3}hę^{3} *it fell*, ce^{3}hę$^{2-2}$ *it is visible*, nta^{3}he^{2} *River Tilpan*; nta^{1} *smooth*, nta$^{3-1}$ *good*, nta$^{3-2}$ *a song*, nta^{4} *voice*; na^{4}nta^{4} *cactus*, na^{4}nta$^{2-1}$ *spring*, na^{3}nta$^{2-1}$ *river*, na$^{4-3}$nta$^{3-1}$ *godmother*; ni^{3}nta$^{3-2}$ *bone*, ni^{4}nta^{4} *fox*, ti^{4}ntai$^{2-1}$ *buy!* ti^{4}ntai$^{3-1}$ *make* [*it*]*!* ču^{4}ntu$^{3-2}$ *worm*; ni^{3}ntu^{1} *slippery*, ni^{3}ntu$^{3-2}$ *needle*, ni^{4}ntu^{3} *pimple*; ca^{3}nka^{3} *he ran*, ca^{4}nka^{4} *cotton*, ča^{3}nka^{2} *old*, ča^{4}nka^{4} *liver*; ntu^{3}hu^{1} *long*, ntu^{4}hu^{4} *soap*; na^{3}šu$^{2-1}$ *flower*, na^{4}šu^{4} *throat*, cha^{4}šu$^{2-1}$ *fuzz*, ci^{3}šu^{2} *he boils* [*something*], ni^{3}su$^{3-2}$ *dipper*; ča$^{4?}$a^{1} *armadillo*, čhų^{4}ę^{2} *his wife*, ha$^{4?}$o^{3} *all right*, he$^{4?}$e^{4} *new corn*.

The above words have been cited in their basic allologs, and they retain these basic allologs when occurring phrase finally after a word which ends in tone 3 or tone 4. Therefore the tones of these words may be tested with a preceding frame which consists of any word of the requisite grammatical type which ends in tone 3 or tone 4.

7.2. The pitch of single voiced consonants and of clusters with n plus stop or affricate is conditioned by the tone of the vowel which follows them, and frequently enters into nonphonemic glides constituted of nonphonemic slur from the consonant pitch to the nuclear pitch:

Preceding a vowel with tone 4, voiced consonants are a little higher than tone 4, so that in words phonetically similar to ša⁴nta⁴ *hen* there is a slight nonphonemic down-glide from the medial consonant to the vowel of the second syllable.

Preceding a vowel with tone 3, voiced consonants are a little higher than tone 3, so that in words phonetically similar to ška³nta³ *son-in-law* there is a slight phonetic down-glide from the medial consonant to the following vowel.

Preceding a vowel with tone 2, voiced consonants are a little lower than tone 2, and hence in words phonetically similar to si³nka² *shirt*, there is a slight phonetic up-glide from the consonant to the vowel of the second syllable. This glide is not as extensive as the phonemic glide on the nucleus of the second syllable of words with a tone cluster 3-2 as in te³nku³⁻² *eleven*. In words phonetically similar to čhi³nte²⁻¹ *black zapote*, the reinforcement of the phonemic nuclear glide by the augmentation of the preceding phonetic glide results in a phonemic glide which is phonetically slower and of greater depth than the phonemic glide in a word with medial voiceless consonant such as ča³kį²⁻¹ *firewood*.

Preceding a vowel with tone 1, voiced consonants are a little lower than tone 1. In words phonetically similar to chu¹ne¹ *he steps on*, therefore, there is a slight nonphonemic up-glide on the second syllable. This glide is quicker and not as deep as the phonemic glide in words with the phonemic tone cluster 2-1, as in ste¹ña²⁻¹ *he sells*.

The pitch of the consonant is more easily heard word medially than it is word initially, and in that word-initial position it is heard more easily on certain consonants and on syllables with certain tones than with other syllables. An example in which a phonetic up-glide can be heard with relative ease word initially, as the nonphonemic pitch moves from the consonant to the phonemic pitch of the vowel, is ya¹skų¹ *small stool*. A word-initial phonetic down-glide can be heard, similarly, in ntya³ *salty*.

Voiced consonants which cluster with h or with ʔ are, at times, phonetically voiceless, yu³hwi³ *cloud*. Such consonants cause no pitch glide. Clusters which have voicing and include h or ʔ seem to be of the same pitch as the vowel which follows, unless that vowel has tone 1. If the vowel has tone 1, there may be a slight nonphonemic up-glide from the consonant to the vowel, as in ʔwe¹tho¹ *he keeps*.

7.3. The fact that stress is not a conditioning factor for tone is clear when we see all phonemic pitches occurring in contrast under identical stress conditions, e.g. on any syllable preceding hyphen, or, if a word contains no hyphen, on any syllable immediately preceding word space. (For examples, see **7.1**.)

We found no phonemic contrast in the length of one tone cluster versus another tone cluster; however, and we found that, as in Huautla Mazatec,[20] a syllable with two vowels takes perceptually the same time as a single vowel in a similar environment. On the other hand many degrees of phonetic vowel length did appear though they never occurred in contrast with one another in comparable positions in stressed syllables and/or in grammatical words.

A medium degree of length occurs on syllables which precede word space provided they are not in turn preceded by hyphen. In the following example the third and fifth syllables have medium length: wa³te³ya³ ya³ho³ *he cuts meat*.

A longer degree of length, which seems perceptually to be about twice as long as the medium length, occur on syllables preceding hyphen. The morpheme te³ *ten* is considerably longer in the first than in the second example: te³-ma³ ni³tha³ *there are ten hats*; te³ ni³tha³ *ten hats*.

A shorter degree of length occurs on enclitics and on syllables which are initial

[20] Kenneth L. Pike, Tone Languages. Pg 96.

or medial in a grammatical word—i.e. on unstressed syllables. For example a shorter degree of length occurs on the first syllable in ni^{4}si^{4} *basket*, the first two syllables in šu^{4}ta^{4}ša$^{2-1}$ *town official*, and the last syllable in swe^{1}-ri$^{2-1}$ *you are warm*.

When no consonant intervenes between a vowel preceding hyphen, and a vowel of the same quality following hyphen, the last two types (phonetically long and phonetically short) combine phonetically into an extra-long phonetic vocoid, which is phonemically in contrast to the conditioned nonphonemic long vocoid, and which must be analyzed as comprising a fused sequence of two like vowel phonemes of which the first is phonetically long and the second is phonetically short: ki^{4}ča^{4}-a^{4} *this metal* (ki^{4}ča^{4} *metal*, -a^{4} *this*); nta^{4}hi^{3}-i^{4} *this sugarcane* (nta^{4}hi^{3} *sugarcane*, -i^{4} *this*); ci^{3}skwą$^{2-4}$-ą^{4} *I make* [*it*] *into powder* (ci^{3}-skwą$^{2-4}$ *he makes* [*it*] *into powder*, -ą^{4} *I*).

Crisscrossing the above divisions are further complications. Rising glides tend to be longer than falling glides. For example ti^{4}?wai$^{4-2}$ *bend it!* has a longer second syllable than ni^{3}?wai$^{2-4}$ *you are bending* [*it*] (but both are shorter than the syllable containing the fused sequence of two like vowels in ni^{3}?wai$^{2-4}$-i^{4} *you, emphasis, are bending* [*it*]). Also the second syllable of ča^{4}sei$^{3-2}$ *look!* is longer than the second syllable of ča^{3}sei$^{3-4}$ *you are looking* (but both are shorter than ča^{3}sei$^{3-4}$-i^{4} *you, emphasis, are looking*).

Glides rising from tone 4, furthermore, tend to be longer than glides rising from other tones. For example ci$^{4-3}$ *yours*, and nče$^{4-2}$ *cooked corn* tend to be longer than ci$^{2-1}$ *rain*, and nte$^{2-1}$ *shoes*.

The possible permutations in combination of the above kinds of conditioned length of vowel[21] provide, in theory, more degrees of length than we give in this paper.

[21] Nonphonemic length of consonant is one of the phonetic phenomena that is most noticeable to a person accustomed to Huautla Mazatec. Consonants, especially stops, are lengthened in stressed syllables, that is, at the end of a grammatical word.

AGUACATEC (MAYAN) PHONEMES WITHIN THE STRESS GROUP

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0. Introduction
1. Vowels
2. Consonants
3. Stress
4. Summary

0. In our discussion of Aguacatec[1] any speech of a person, between the time he begins to speak and the time he stops and another begins to speak, will be called an utterance. Within this utterance there may be one or more phrases, or stretches of speech between pauses. Each phrase is phonologically segmentable into one or more stress groups, or feet.[2] Each stress group consists of one stressed syllable with or without other unstressed syllables and is produced by one abdominal pulse. The borders of these stress groups are written with space and the placement of stress is symbolized. The purpose of this paper is to show that the most economical statement of the phonemes of Aguacatec is one which deals with their distribution within the borders of the stress group.

The term syllable, as used in this paper, refers to a structural unit consisting of a vocalic nucleus in combination with marginal elements which precede it or follow it or both.

1. There are ten vowel phonemes in Aguacatec, five short and five long. The short vowels are unrounded front vowels a, e, i at low, mid and high tongue positions and rounded back vowels o, u at mid and high positions. Long vowels are a·, e·, i·, o·, u· at the same tongue positions as the corresponding short vowels. The short vowels are phonetically [ə], [ɛ], [ɪ], [o], [ʊ] while the long vowels are phonetically [a], [e], [i], [o], [u]. The difference between o and o· is solely one of length; the difference between other pairs of short and long homorganic vowels is one of length and vocoid quality. No clusters of syllabic vocoids have been found.

Any vowel may occur medially in the stress group, e.g. ṣaq *clay*; mem *deaf person*; sič′ *yell*; č′ok *blackbird*; buč *flowers*; ṣa·q *leaf of a tree*; če·h *horse*; si·č′ *cigarette*; čo·k *plow*; bu·č *late*. Some vowels occur

[1] Aguacatec is a member of the Mayan language family of the Guatemalan Highlands. It is spoken by approximately 7,000 Indians living in the municipality of Aguacatán, Department of Huehuetenango. The municipality is about evenly divided into two slightly differing dialects. Those living west of the main square speak the Aguacatán dialect while those living east of the square speak the Chalchitán dialect. The line dividing the two is quite sharp and is paralleled by a cleavage of styles of dress, dates of feasts, and ceremonial centers. The material presented in this paper is from the Chalchitán dialect. The data were gathered in 1953–54 during a field trip of about one year, under the auspices of the Summer Institute of Linguistics. Joseph Grimes, of the Institute staff, gave much valuable advice on the preparation of this paper. Kenneth L. Pike also provided helpful counsel and criticism.

[2] This approach to the problem of establishing borders was suggested by the late R. H. Stetson in his Motor Phonetics[2] (Amsterdam, 1951). There he defines the foot as an abdominal pulse with one stressed syllable or a few syllables grouped about one stressed syllable. An earlier definition by the same author is found in Bases of Phonology (Oberlin, Ohio, 1945) 'The foot includes one or more chest pulses, syllables, grouped by an abdominal-diaphragmatic contraction of expiration. This is the movement which binds the syllables together and gives junctures and the main stress.' (57) Pike in his Phonemics (Ann Arbor, Michigan, 1947) uses the term 'stress group' for Stetson's 'foot'; Pike's terminology is used in this paper.

finally in the stress group, e.g. ʔintá· *my father*; q'e· *sun*; k'o· *mask*; ku· *yes*.[3] No vowels occur initially in the stress group.

In many syllables the nucleus is a close-knit complex of any vowel plus glottal stop, e.g. kaʔl *house*; koʔn *cornfield*; kmiʔš *shirt*, etc. In every case where this nucleus occurs medially in the stress group the vowel is lightly rearticulated after the glottal stop. There is a sequence of two equally sonorous vowel phonemes separated by a glottal stop and with stress occurring on the second vowel. In the sequence vowel plus glottal stop plus rearticulated vowel the stress never falls on the second vowel.[4] The first sequence is interpreted as two syllables, the second as one syllable.

2. A stress group may begin with one consonant or with a cluster of two, three, or four consonants. The single consonants are shown in the following chart:

	Bilabial	Alveolar	Retroflex	Palatal	Velar	Back Velar	Glottal
Nonglottalized stops	p	t		kʸ	k	q	ʔ
Glottalized stops	b	t'		kʸ'	k'	q'	
Nonglottalized affricates		c	ç̌	č			
Glottalized affricates		c'	ç̌'	č'			
Fricatives		s	š	š			h
Nasals	m	n					
Lateral		l					
Flap		r					
Semivowels	w			y			

2.1. Nonglottalized Stops p, t, kʸ, k, q are voiceless and unaspirated initially and medially in the stress group. Finally in the stress group they are aspirated lightly. p, t, k, q, ʔ occur initially, medially and finally in the stress group: pom *incense*, kaʔpén *day after tomorrow*, pop *straw mat*; tuk' *horn*, mí·tuʔ *cat*, tut *raincape*; koc *gift*, k'oʔkal *flavor*, sok *nest*; qa·q' *our tongue*, wuqán *my foot*, saq *white*; ʔaʔ *water*, taʔál *its juice*, woʔ *frog*. The palatal kʸ occurs initially and medially but has been found finally in the stress group only following i or e: kʸaʔh *sky*, nikʸal *middle*, šikʸ *boy*.

Glottalized Stops t', kʸ', k', q' are voiceless with simultaneous glottal closure. They occur initially, medially and finally in the stress group: t'uy *small earthen jug*, ʔat'uy *your small earthen jug*, kot' *loose*; kʸ'ah *lazy person*, ʔakʸ'áč *your hip*, ši·kʸ' *wing*; k'aʔ *stone*, ʔá·k'ah *new*, sak' *grasshopper*; q'aʔ *bridge*, ʔé·q'um *carrier*, q'a·q' *fire*. The glottalized bilabial stop b has the following allophones: voiced implosive [ɓ] occurs initially in the stress group: [ɓan] ban *good*; voiced pre-glottalized ['b] occurs intervocalically within the stress group: [čí·'bah] čí·bah *meat*; voiced [b] occurs as final member of a consonant cluster: [paʔatbíl] paʔtbíl *raincape*; voiceless [p'] and voiceless with voiceless nasal release [pᴹ] freely fluctuate finally in the stress group: [kap'] [kapᴹ] kab *brown sugar*.[5]

2.2. Nonglottalized Affricates c, ç̌, č occur initially, medially and finally in the stress group: cuʔ *gourd*, kacám *Come!*, woc *rattlesnake*; ç̌ant *almost*, ʔaç̌ú·ʔč *your milk*, bu·ç̌ *cooked dried corn*; če·h *horse*, hučúl *wrongdoer*, bu·č *late*.

Glottalized Affricates c', ç̌'' č' occur initially, medially and finally in the stress group: c'uh *a drop*, ʔá·c'um *salt*, woc' *toasted tortilla*; ç̌'a·č *bed*, ʔaç̌'i·ʔ *your dog*, hoç̌' *ceremonial drink*; č'i·č' *metal*, qač'iw *our hope*, čič' *blood*.

2.3. Fricatives s, š, š, h occur initially, medially and finally in the stress group: sas

[3] This differs from other Mayan languages of Guatemala where no long vowels are reported to occur word finally. See Alfabeto para los cuatro idiomas indígenas mayoritarios de Guatemala: Quiché, Cakchiquel, Mam y Kekchi, Publicaciones Especiales del Instituto Indigenista Nacional, Editorial del Ministerio de Educación Publica (Guatemala, 1950) 23, 27.

[4] See **3.** for discussion of stress.

[5] For analysis of the b phoneme in another Mayan language see Nadine Weathers, Tsotsil Phonemes with Special Reference to Allophones of B, IJAL 13.108–11 (1947).

lightweight, cisis *cypress*; šal *pot*, išiʔn *corn*, šaš *fine*; šal *Baltasar*, kašáʔ *box*, šeš *red*; há·luʔ *today*, puhúl *one who unties*, če·h *horse*.

2.4. Nasals m, n occur initially, medially and finally in the stress group: macól *barber*, ʔumúl *rabbit*, ʔalk'óm *thief*; ne ʔ *child*, wunaq *people*, hun *one*. The bilabial nasal has an allophone [m]; the alveolar nasal has allophones [n], [ŋ]. These allophones [m], [n], [ŋ] are pronounced on a chest pulse of low intensity preceding the main chest pulse of the syllable. [m] occurs only initially in the stress group before another bilabial consonant, [mbiʔ] mbiʔ *what?*; [n] occurs only initially before consonants other than bilabial or velar, [ntyoš] ntyoš *thank you*; [ŋ] occurs only initially before another velar consonant, [ŋqé·rats] nqé·rac *that isn't it*. n has another allophone [ŋ] which occurs medially in the stress group before another velar consonant, [ʔiŋkók] ʔinkók *my back*.

2.5. Liquids are lateral and flap r. They have voiceless allophones which occur only initially in the stress group before another consonant or finally in the stress group following another consonant. Voiced and voiceless liquids are in free fluctuation finally. The following examples show the distribution of the voiceless allophones: [lmunč] lmunč *lemon*, [tečl] tečl *sign*; [ʀmeríl] rmeríl *hope*. The flap r occurs mainly in loan words but it has been found in a few forms which cannot definitely be recognized as loans, e.g. tér-uʔ *you* (formal). Liquids occur initially, medially and finally in the stress group: lab *ghost*, šél-uʔ *your substitute*, hobíl *knife*; ri·k *rich person*, tér-uʔ *you* (formal), or *now*.

2.6. Semivowels are w and y. w is a high back rounded nonsyllabic vocoid. y is a high front unrounded nonsyllabic vocoid. Semivowels occur initially, medially and finally in the stress group: wuc *eyes*, ʔawéš *your trousers*, šaw *moon*; yol *word*, biyól *butcher*, poy *scarecrow*.

2.7. Clusters of up to four consonants occur initially in the stress group. An attempt has been made to formulate these clusters in a manner similar to that employed by McKaughan for Chatino[6] but it has not been successful in that the number of four- or three-consonant sequences found to date is limited and those sequences that do occur have, in his terms, 'restricted application'.

The following four-consonant sequences have been found initially in the stress group: kšpn, kšpl, kšty, kšpn, kšpl, nkšk' : kšpníš *you* (*sg.*) *finish*, kšplohín *you* (*sg.*) *get lazy*, kštyan *Ladino*, kšpniš *you* (*pl.*) *finish*, kšplohín *you* (*pl.*) *get lazy*, nkšk'aʔčán (*someone*) *fed you*. The following three-consonant sequences have been found initially in the stress group: ksp, kšk, kšb, kšq', kšc, kšc', kšč, kšč', kšs, kšh, kšn, kšw; kšp, kšb, kšk, kšc, kšc', kšč, kšs, kšh, kšn, kšw; spn, sbn, str, skw, štr, nty: kšpeʔq *you* (*sg.*) *like*, kškim *you* (*sg.*) *die*, kšben *you* (*sg.*) *go*, kšq'ačon *you* (*sg.*) *take corn off the cob*, kšcan *you* (*sg.*) *do* (*something*), kšc'eʔ *you* (*sg.*) *are burned*, kščen *you* (*sg. or pl.*) *are grinding corn*, kšč'uy *you* (*sg. or pl.*) *grow*, kšsután *you* (*sg.*) *turn about*, kšhilón *you* (*sg.*) *talk*, kšnum *you* (*sg.*) *are nauseated*, kšwan *you* (*sg.*) *eat*; kšpeʔq *you* (*pl.*) *like*, kšben *you* (*pl.*) *go*, kškim *you* (*pl.*) *die*, kšcan *you* (*pl.*) *do something*), kšc'eʔ *you* (*pl.*) *are burned*, kšč̣umún *you* (*sg. or pl.*) *think*, kšsutan *you* (*pl.*) *turn about*, kšhilón *you* (*pl.*) *talk*, kšnum *you* (*pl.*) *are nauseated*, kšwan *you* (*pl.*) *eat*; spnišq *finished*, sbneʔ *he does or makes* (*something*), stranhér *foreigner*, skweʔl *school*, štruk' *a swallow* (*of liquor*), ntyoš *thank you*. The following two-consonant sequences have been found initially in the stress group: pc, pc', pč, pl, pn, pw, pr; tp, tk, tkʸ, tb, tk', tq, tq', tl, tn, tw, ty; bn; kš, kṣ̌, km, kn, kl, kw; qb, ql; čk, čm; čk; cb, cq, cm, cl; c'k, c'l; st, sk, skʸ, sq, sb, sc, sc', sh, sm, sn, sl, sw, sy; šp, šk', šč, šč',

[6] McKaughan, Howard P. Chatino Formulas and Phonemes, IJAL 20.23–7 (1954).

šm, šw; šp, šk, šq, šb, šk', šq', šc, šč, šč', šm, šn, šl, šw; mb; nt, nk', nq, nc; lb, lkʸ', lm, lw; rm: pco?m *little sticks*, pc'um *sugar cane*, pčum *dibble stick*, ploh *useless*, pníš-u? *you finish*, pwak *money*, prow *poor*; tpiltá? *courthouse*, tko?n *in the cornfield*, tkʸa?h *in the sky*, tbe? *in the road*, tk'aybíl *market*, tqeqné? *cluck*, tq'umbíl *her little pot*, tlolts ?, tnum *town*, twí·bah *hat*, tyoš *church*; bnol *one who makes (something)*; kše?y *jacket*, kšé·bah *fresh corn*, kmi?š *shirt*, kne?r *goat*, klaš-u? *you (sg.) are rescued*, kwe?n *the falling (of something)*, qbarél *drunk man*, qlo? *perhaps*, čkan *deaf person*, čmi·l *husband*; čkan *leaf cutting ant*; cbil *broom*, cqom *large tamale*, cma? *drinking gourd*, clin *species of bird*; c'ka?l ?, c'lum *board*; stahé?n-u? ?, skol-u? ?, skʸe?h *to them*, sqa? *rice drink*, sbaq *cloud*, scebah *chicle*, sc'iblál *news*, shoyól-u? ?, sme?t *a bread*, snik *ants*, slup *butterfly*, swuc *in front of*, syup *raincape*; špak' *whip*, šk'as *you (sg.) wake up*, ščin *ear*, šč'ahán ?, šmek' *shell*, šwi·t *pup*; špu?k *blanket*, šqoya? *tomato*, šqahláp *companion*, šbil *hatchet*, šk'o?n *griddle*, šq'ol *mud*, šce? *brush*, šč̣olbíl *plan or order*, šč̣'o·č̣' *his land*, šmaybíl *field glasses*, šna?n *woman*, šlo? *frog*, šwac *eyelids*; mbi? *what?*; ntašq *not yet*, nk'as-u? *you (sg.) woke up*, nqec *negative*, nča?c *also*; lben-u? *you go*, lkʸ'ah ?, lmunč *lemon*, lwuleh ?; rmeríl *remedy*.

Clusters of two or three consonants occur finally in the stress group. The following three-consonant sequences have been found finally: nks, mpl, rkš, ntr: ?anks *garlic*, wempl *my ribs*, čerkš *scissors*, contr *against*. The following two-consonant sequences have been found finally: tp, qp, sp, šp, hp, mp, lp; qt, št, ht, nt, lt, wt, yt; šk, lk, rk; mk'; kq, čq, šq, hq, nq; nq'; pc, kc, qc, čc, sc, hc, mc, nc, lc, yc; pč, kč, q'č, nč, lč, wč, yč; ns, ws; kš, wš; pš, kš, qš, lš; pl, tl, kl, ql, bl, k'l, čl, sl, šl, hl, ml, nl, wl, yl: kotp ?, heqp ?, posp *matches*, hišp ?, cuhp *a drop*, trimp *falling*, rewolp *revolver*; pultnáqt *boiled*, mu?št *a little more*, sqeht *dry*, čant *almost*, nult *I come again*, ?ewt *yesterday*, buyt *old*; mišk *Mixco*, balk *brother-in-law*, mark *door frame*; ?amk' *world*; ki?kq ?, ?e?čq ?, ntašq *not yet*, naquhq ? šonq *to visit*; winq' *twenty days*; šop-c *he fears*, nok-c *I enter*, weqc *my load*, k'ič̣-c ?, k'as-c ?, činhoylíh-c *they search for me*, kim-c *he dies*, ban-c *he makes*, tlol-c ?, k'ay-c ?; wu·?pč flower, ?amokč *don't (you) touch it!*, ?itaq'č *don't (you) give it!*, lmunč *lemon*, čalč *lying on one side*, ?akawč *don't (you) give orders*, ?ahoyč *don't (you) look for it!*; ko·ns *hip*, we·ws *Thursday*; wakš *cow*, hawš *(a class of bean)*; la?pš *ten chile peppers*, wa?kš *chickens*, wa?qš *break*, talš *he (that one) says*; ?u?pl *firecrackers*, watl *sleepiness*, ta·?kl *its root*, sceql *spine*, Bibl *Bible*, pak'l ?, tečl *sign*, k'asl *something that awakens one*, bišl *a dance*, kʸ'ahl *son*, tuml *companion*, šonl ?, nawl *spirit*, tk'ayl *market*.

Ambisyllabic clusters of two or three consonants occur within the stress group. When the point of syllable division in such clusters cannot be heard, it may be predicted as occurring: (1) between the consonants of a two-consonant cluster if they do not form a sequence which is permitted initially according to those listed above, e.g. q'us.q'úh *delicious*, (2) before the first consonant of a two-consonant cluster if they form a sequence which is permitted initially, e.g. qa.kmón *our committee*, (3) after the first consonant of a three-consonant cluster if the last two form a sequence which is permitted initially, e.g. in.kmí?š *my shirt*, (4) after the second consonant of a three-consonant cluster if the first two form a sequence which is permitted finally, e.g. k'olč·bíl *seat*. In the case of a three-consonant cluster in which the last two consonants form a sequence which is permitted initially and the first two form a sequence which is permitted finally the syllable division is placed after the first consonant on the basis of greater numerical

frequency of occurrence of syllable initial clusters than of syllable final clusters.[7]

3. Each phrase of Aguacatec is also morphologically segmentable into one or more minimal, potentially isolatable fractions such that every morpheme of the phrase, except for morphemes of the proclitic and enclitic classes, is included in one of these fractions. These fractions we call words. Every stress group contains only one word but may also contain one or more phonologically dependent clitics which may form immediate constituents with that word or with the phrase as a whole. The morphological barrier between word and clitic is symbolized by a hyphen.

The placement of stress is predictable on the grammatical level. Since it is not predictable on a phonological level we are treating it as a phoneme and symbolizing it with a ′.[8] Within the word, stress occurs on the final long vowel or on the final short vowel if no long vowels are present. The prosodic features of emphatic stress and possible intonational pitch within the phrase have not yet been satisfactorily analyzed though some features have been noted. Each phrase has a strong stress, stronger than the word stress, usually but not always occurring on the stressed syllable of the last word in the phrase. Further investigation may show a relation between the placement of this stronger stress within the phrase and the intonational pitch of that phrase.[9]

4. The foregoing description of the phonemes of Aguacatec has shown the existence of certain positive marking features that characterize the borders of stress groups. Within the stress group, syllables preceding the peak of stress are spoken more rapidly than those which follow it. In addition to the audible change of speed the following stress group initial marking phenomena occur: (1) allophones of the nasal phonemes produced by a chest pulse of low intensity preceding the main chest pulse of the syllable, (2) voiceless allophones of the lateral and the flap phonemes.

The stress group final marking phenomena are the following: (1) aspirated allophones of the unglottalized stop series, (2) voiceless allophones of the bilabial glottalized stop and of the lateral and flap phonemes.

In segmenting an utterance into stress groups on the basis of the occurrence of these marking allophones there remains a residue of unsegmented forms where no such marking allophones occur or where the the border is not easily perceptible to the ear. This residue is segmented on the basis of the occurrence of morphological words plus their phonologically dependent clitics. Borders of such morphological constructions in all cases coincide with borders of stress groups.

[7] This method of determining word medial syllable divisions was suggested by O'Connor, J. D. and Trim, J. L. M. in an article Vowel, Consonant and Syllable—a Phonological Definition, Word 9.103–22 (1953).

[8] If, however, one were to conclude that this kind of grammatical grouping is legitimate as a basis for describing phonological conditioning, then we could treat stress as non-phonemic but grammatically conditioned.

[9] Such a relationship has been found to exist in Huasteco, a related language of Mexico, cf. Larsen, Raymond S. and Pike, Eunice V. Huasteco Intonations and Phonemes, Lg. 25.268–77 (1949).

LANGUAGE IN CULTURE. Conference on the Interrelations of Language and Other Aspects of Culture. Edited by Harry Hoijer. Chicago: The University of Chicago Press, 1954. xi + 286 pp.

YAKOV MALKIEL

Boas probably followed the lead of Wundt and other European celebrities when, in the Introduction to his Handbook (1911), he defined linguistic inquiry as an indivisible part of the 'investigation of the psychology of the peoples of the world', indeed one which, by virtue of the preëminently unconscious character of linguistic categories, offered a singularly reliable clue, free from secondary contaminations. A more incisive wording was offered by Sapir in 1929 when he labeled language as a guide to 'social reality'. He minimized the strictly communicative function of speech, argued that the 'real world' was largely built up on the given set of verbal habits, and coined the graphic, if potentially hazardous, description of individuals as remaining at the mercy of their particular language and of our perceptions as being in no small degree dependent on the 'classificatory suggestiveness of the linguistic terms themselves'. Two years later, Sapir contended that language 'actually defines experience for us by reason of its formal completeness'; he discovered a comparable symbolism in self-contained mathematical systems and reverted to the image of 'the tyrannical hold that linguistic form has upon our orientation in the world'. Still later, he sounded a therapeutical note, urging men to 'learn to fight the implications of language . . . at one and the same time helping and retarding us in our exploration of experience'.

Whorf, working on Hopi, gave a still more trenchant phrasing to this assumption, replacing Sapir's complex notion of language, with explicit mention of the connotative power of words, by the rival concept of bare grammatical structure as a factor in conditioning the different observers' discrepant views of the world. To Whorf also we owe the effective, if controversial, metaphor of grammar concealing a hidden metaphysics, and the explanation of the naïve world view as a 'kaleidoscopic flux of impressions which has to be organized by our minds—and this means largely by the linguistic systems in our minds'. In other contexts, however, Whorf referred to peculiar 'fashions of speaking' as ways of reporting experience that cut across grammatical classifications and the lexicon. The posthumous publication, in 1952, of Whorf's Collected Papers on Metalinguistics and the lively reaction to it in numerous quarters precipitated further organized discussion of the multi-faceted problem. After an initial airing of the issues at the International Symposium on Anthropology in New York late that same year, a conference of carefully selected anthropologists, linguists, philosophers, psychologists, philologists, and historians (the last two groups, inexplicably, not identified on the book jacket) was held in Chicago in March, 1953, on the initiative of R. Redfield and under the chairmanship of H. Hoijer; the Ford Foundation provided the requisite financial backing. Hoijer has logically also acted as the editor of the present volume, which embodies the main results of the Conference.

The book falls into two neatly separated sections: the text of seven formal communications, unretouched by the editor even where a measure of duplication was involved (cf. 47–53 and 92–94), but enlarged and revised by the authors themselves in the light of comments and queries by other participants; and the core of nine discussions, cut from an extensive typewritten transcript (based on a dual record by steno-

typy and on tape). This second part shows the intervention of the editor at every step: the original wording was compressed, and the colloquial flavor of the debate was sacrificed to the exigencies of semiformal presentation. The whole is framed by a Preface, in which the editor candidly draws the balance of the entire venture ('we did too little in the definition of particular research projects . . . all of us gained a new and better understanding of the Whorf hypothesis') and by a helpful Index providing a triple key to topics discussed, authorities quoted, and the respective shares of participants in the actual discussions.[1] The material make-up of the volume and the typographic design are such as to attract the cultured lay reader. Footnotes have been skillfully eliminated in favor of a system of bibliographic references, whose chief advantage is increased readability and whose only drawback is its insistence on the date of the most readily available edition of the given item, which all too often (especially with Sapir and Whorf) differs by a sizable margin from the respective dates of original publication, actual writing, and tentative draft. Where history of ideas is involved, this otherwise valid procedure may result in a slightly skewed perspective.

A reviewer of the miscellany, even if granted unlimited space, may find it difficult to do justice to so many different minds ranging over diverse fields and having recourse to dissimilar terminologies (fortunately, the general climate of the discussion remained invariably friendly throughout). This inherent difficulty is particularly perceptible in the Discussions: despite the chairman's (and subsequent editor's) earnest efforts at coördination, mild misunderstandings did not fail to occur at intervals and the thread, upon occasion, was abruptly lost, a few times only to be taken up at an unforeseeable juncture. This leaves the reader with some loose ends: constructive ideas not sharply delineated, incipient doubts not condensed into articulate objections, stimulating similes that tease the imagination without quite satisfying the intellect.

F. Fearing's contribution, by a wide margin the longest and the one accompanied by the most elaborate bibliography (47–81; discussion: 175–198), aims at embedding the relativistic conceptions of Whorf in the context of current theories of perception and conceptualization (two faculties here subsumed under 'cognition', 175), as seen by a social psychologist. The results, though reported with every possible safeguard of meticulous qualification and with ever-present willingness to give the chosen author the benefit of the doubt, are far from favorable to Whorf, who (his critic avers) seems to have overstressed culture, with special attention to linguistic segmentation, as the determiner of the individual's world view, to the point of almost disregarding the biologic universals and the individual's chance of escape, however limited, from linguistic constraint:

> This does not tell us much about the developmental sequence in the individual. In view of the compelling role which Whorf ascribes to language, we may inquire at what point it begins to operate (53). . . . We may not assume, as does Whorf, that primordial experience is characterized by kaleidoscopic confusion, but, on the contrary, that it is a structured unity [a point obliquely illustrated with an analysis of drawings by children] and expresses a dynamic relationship between the individual and the environment. Nor is all the experience of the enculturated ['fully acculturated'] adult wholly ordered by linguistic patterns. . . . The evidence seems to be conclusive that there is a type of cognition in which the individual is in immediate contact with the external world, that in its simplest form it is probably the same for all men irrespective of culture ['natural logic', impugned by Whorf], and that symbolic

[1] The Index might have been expanded to include terms of color perception, examined in detail in the papers of Newman and Hoijer and touched upon by Greenberg (8) and by McQuown, Newman, and Lenneberg (196–8); and the processes which might best be called lexical polarization, covert and overt, later discussed in this critique (add Hockett, 195–6).

processes, including language, are not necessary for it to occur (72). . . . W. does not take these other forms of cognition into account [except for stray hints at apprehension, as against conceptualization, of space and at kinesthesia and synesthesia], nor does he explore the relationships between linguistic processes and the dynamic properties of the communication situation (78; cf. 177). . . . I do not think that the experience of the organism at any stage is a blooming confusion. There is always figure-ground differentiation (180).

Some of the by-products of this inquiry of potential interest to the linguistic practitioner are the comparisons drawn between the language of a normal child born into an advanced form of civilization and those of a psychotic and of an uncivilized adult (I should have liked to see certain artistic, especially modern artistic, attitudes, including naïveté and immediacy, discussed in this connection); and the peculiar relation of synesthesia and metaphor (69–70). It takes a specialist to assess the merit of the extensive statements on sociology of knowledge, on perception and conception viewed as two extremes of essentially the same continuum (according to Lenneberg, the former may remain as a substratum of the latter, 178), on the specific point along that continuum where symbolic techniques are introduced, and on the contrast between syncretic, undifferentiated, physiognomic and analytical, discrete, abstract forms of cognition. But even a layman notes significant admissions of ignorance: the character of the all-important triad symbolic behavior (Lounsbury and Hockett prefer to talk of sign behavior) ⌣ conceptualization ⌣ communication, three phenomena which do not seem to operate independently, remains unexplained (182–3); disagreement prevails as to whether physiognomic perception inescapably involves a lack of recognition between the external world and the self (Greenberg, 177–8; Kroeber, 180 and 188, on association and insight on the subhuman level; Newman, 186); and there remains a gap between primitive mentality, marginally admitted, and primitive language structure, emphatically ruled out (Lounsbury and Hoijer, 189; Singer, 195). Scholars have no way of getting at prelingistic data uncontaminated by post-linguistic contexts (Singer, 184–6, 194–5).

Of the remaining papers, two deal each with a single language, contrasted with English. In an essay commendable for its fluent, witty style C. F. Hockett first avers that Whorf's is just one out of four theoretically possible approaches to the correlation of linguistics and ethnography; then, by way of experiment, aligns standard northern Mandarin against English in an effort to determine not what can be said but what it is relatively easy to say in each language. He stresses the absence of matching borderlines between contiguous words ('city' versus 'village'), conflicting patterns of idiomatic speech (statement of a person's age), unequal degrees of inclusiveness in generic terms ('berries', 'fruit', 'nuts' untranslatable into Chinese; 'fruits and/or nuts' a nonexistent unit in English), the random distribution of 'holes in patterns' (an infelicitous cover term for lacunae and ambiguities), clashing degrees of sharpness in distinguishing a field of study from the study itself and instance from variety (Yuen Ren Chao's pidginized one-piece-sound versus one-kind-sound), also different ways of expressing number, of extending the metaphoric range of verbs of motion and of possession, of projecting space into time and conversely, of selecting a desirable degree of specificity, etc. A synthesis of these excellent individual observations is not attempted and Newman's pertinent statement that this fragmentariness is virtually inherent in the lexico-semantic material is not duplicated. At the very end, Hockett makes a timid effort to link the relativistic use of stative verbs in Chinese to moderation in all things as the typical Confucian 'philosophy of life', but (unlike Hoijer at the close of his parallel exploration) immediately withdraws his own conjecture as being fraught with too many risks. With great hesitation and many symptoms of un-

easiness, he assumes, as does independently Greenberg, that 'philosophy of life' predominantly shapes language rather than vice versa.

C. F. Voegelin, with the aid of two junior partners, analyzes Shawnee Laws, as contrasted with English law, in two ways (32–46): on the level of linguistic structure (externally perceived versus internally experienced, a classification arrived at in a roundabout fashion, by means of precise morphological substitutes for the above subjective categories, while a small class of neutral terms remains as an irreducible residue); and on the level of ethnographic content (eventful versus contemplative, or half-and-half, or differently mixed). At the end he toys with the idea of establishing a relationship, admittedly of a lower order than an equation, between, on the one hand, externally perceived and eventful, and, on the other hand, internally perceived and contemplative. As in the case of Hockett's essay, the concluding section of this article is something of an anticlimax. The paper, which is a preview of a forthcoming monograph, makes difficult reading, not only because it requires adequate knowledge of Gestalt psychology and of Algonquian folklore, but also as a result of stylistic infelicities (36 middle, 38 middle, 39 top; some unfamiliar terms are defined long after having been introduced); it might have gained measurably from editorial revision.

Among the four papers attacking general problems, N. A. McQuown's Analysis of the Cultural Content of Language Materials (20–31) stands apart through its uncompromising acceptance of behavioral doctrine at its most militant. The core of the proposition is found in Section IV, after a bird's eye view of streamlined distributional analysis:

> We here suggest that an investigation of the patterns of the rest of culture as they are reflected in language, to the extent that they are independent of linguistic patterns, must begin with phenomena of the nonlinguistically determined selection and ordering of linguistic forms. . . . We suggest that the general principles underlying linguistic analysis (contrast, complementation, free variation, pattern congruence, and elegance) should also be applicable here.

In other words, the adequacy of present-day practices of analysis is recognized without the slightest hesitation; and methods are devised to extend its range of application to another, admittedly higher and more complex, level. By way of illustration, the author presents ten problems bearing on the language of the Totonacs (in east central Mexico). Some readers will look in vain for a cogent connection between these problems, whatever their intrinsic significance, and the advocated variety of analysis, with its elaborate superstructure above and beyond the plane of morphemics. For instance, the fairly typical question 5: 'What can a study of Totonac place-names tell us about the earlier location, subsequent movement, and contactual history of Totonac speakers?' clearly pertains to an order of toponymic inquiries which have been quite successfully carried out with no explicit knowledge of, or reference to, structural linguistics. Still less does one understand the pertinency of the appended bits of advice (30–31) on miscellaneous techniques of field work, including the eliciting of speech samples from informants under optimal conditions and the use of 'machine aids [which] store a large corpus of materials coded and fed into them'. From the omission of the names of Sapir and Whorf (except during the discussion period) not a few observers will draw the conclusion that McQuown has little patience with their particular approach and prefers to capitalize on the current popularity of formal distributional analysis. The author's use of conspicuously heavy apparatus for the attainment of fairly modest goals is paralleled by an extremely pretentious terminology and a style obscured by excessive condensation.

In a paper which modesty has prevented him from publishing as a lead article (The

Sapir-Whorf Hypothesis, 92–105), Hoijer from the outset qualifies the validity of a theory he is obviously inclined to espouse. Cultural diffusion (he might have insisted more on its manifestations in bi- and plurilingualism), on the one hand, and biological, psychological, and social universals, on the other hand, combine to counterbalance the isolative power of each language, the chief barrier to intercultural understanding (conflicting categories in Navaho and English are quoted as an obstacle to smooth translation). At this point Hoijer voices three opinions which not all of his coworkers may share: the structural aspect of a language is tripartite (morphology and syntax are kept apart); the structural and the semantic aspect, though of conflicting degrees of complexity, are inextricably bound to each other; meaning must not be equated with nonlinguistic culture. The surprising thing about the conflicting color point-systems quoted as evidence is that the contrast between English and Navaho (merging 'blue' and 'green' but boasting two words for 'black') is not greater than that between two typical IE languages (Sp. *pardo*, *moreno*, *castaño* corresponding all three to E *brown*, G *braun*; Russian separating 'light blue' from 'dark blue', etc.). Hoijer's qualification (97) that in ethnology the frequently used, relatively simple pattern alone matters, to the exclusion of exceptional, refined variants, implicitly assigns a proper place in his schema to stylistics, which is concerned with departures from the average, in terms of frequency, and from the norm, in terms of intricacy. To qualify for ethnological analysis, structural patterns must have unequivocally definable semantic correlates, like number in English (but unlike gender in Latin); this requirement echoes the demands for the separate study of common innovations, for the distinction between productive and extinct morphemes, and for the separation of a free from a frozen syntagma voiced in recent decades by different groups of European linguists. Hoijer's practical recommendations include heightened attention to semantic patterns in sorting out formal categories; profound knowledge of the given language, preferably to the point of speaking ability (here Hockett chimes in, 111–2); systematic comparison of the active patterns, with the limited hope of abstracting from the fashions of speaking thus jointly analyzed a partial description of the thought world of the speakers. Beyond this point, Hoijer argues (and he may run into stiff opposition on the part of inflexible behaviorists), that one may attempt to establish certain links between linguistic and nonlinguistic features of a culture. Thus, he recognizes a consistency, without belaboring the problem of cause-and-effect, between some basic postulates of Navaho religious behavior ('the way to the good life lies in discovering the proper relations of nature to man and in maintaining that relationship intact') and the morphological schema of the Navaho verb ('actors' and 'goals' understood as entities linked to actions already defined in part as pertaining especially to classes of beings). Here Hoijer comes surprisingly close to the position of K. Vossler in Frankreichs Kultur im Spiegel seiner Sprachentwicklung, except that he, as a descriptive linguist, works with static features, whereas Vossler, as a language historian, was primarily concerned with the dynamics of development. Since relationships of this kind are best grasped subjectively and can hardly be explored with any ready-made technique, the extension of linguistics to these latitudes is bound always to remain unacceptable to disciplinarians rejecting intuition and insisting on predictability and general applicability as the twin acid tests of scientific soundness.

S. Newman's paper (Semantic Problems in Grammatical Systems and Lexemes: a Search for Method, 82–91) shares two characteristics with Hoijer's. First, a measure of dissatisfaction with prevailing practices: the author chides fellow linguists for disregarding the frequency dimension in grammatical sketches (a point independently taken up

by Hockett, 127), also for slighting the description of conceptual categories, and himself for having relied too heavily on hunches in the selection of semantically significant features. Second, a willingness to place the study of meaning within the legitimate confines of linguistics proper, by taking the familiar system of structural form as a convenient point of departure. Newman expressly recognizes (90) that there are semantic regularities not manifested in form, e.g. (to use his own words) associations based on an empirical relationship between the references within one situational context. Criteria suggested for gauging the relative prominence of relevant categories include: (a) attribution of greater weight to obligatory than to optional form, illustrated by the status of case versus number in Yokuts (cf. Hockett's statement on number in Chinese, 116–7); (b) classification of features according to their range (the case-voice category in Yokuts spans nouns and verbs; the expression of the mode and the use of proclisis in conjunction with onomatopoeia in a small verbal subclass are severely limited); (c) a statistical check on the actualization of functional potentialities, a phrasing reminiscent of the late writings of Bally (though a Yokuts word may contain any number of thematizing suffixes, less than 0.5% contain two and none more than that; similarly, Yokuts plays down its power of modifying nouns or main clauses).

Another portion of Newman's paper deals with the semantic study of Zuni lexemes, utilized as clues to the way experience is locally conceived. The ambits of lexemes are tentatively determined by a gradually tightening network of English translations and are later redefined in terms of phrase and sentence contexts; the second of the two Zuni words for 'yellow' (namely, yellow as a result of ripening) reminds the Occidentalist of color terms anchored in anatomy (adjectives ordinarily limited to the color of eyes, hair, and complexion). Culturally rewarding semantic studies, we are told, are best carried out in arbitrarily selected categories; this relative autonomy of its consituent segments, one is tempted to add, sharply sets off the lexicon from grammar, whose elements, by definition, are all mutually dependent. Conflicting modes of comparison of persons to animals within the indigenous and the imported layer of Zuni words is a splendid example. Rash generalization would be perilous in this domain: the student of polar contrasts encounters in Zuni a purely semantic opposition, having no overt reflection; the opposite is true of Latin and Romance, especially if viewed in the diachronic perspective (Lang. 27. 485–518) and, in a different way, also of Chinese (Hockett, 120). The basic assumption that lexemes provide a framework that corresponds to an organization of meanings is unassailable; details remain open to doubt—E *boatwsain*, *forehead*, Mand. *hwŏchē* (Hockett, 111) seem to belie the validity of the statement: 'Formally complex lexemes are analyzed into their constituent morphemes, which indicate constituent concepts that are combined and fused in such lexemes'. On the surface, the author's conclusion is sensible: semantic investigations are not the prerogative of the linguist alone, but his voice will be heeded if he can bring to bear his distinctive methods upon the common problems. The broader question of finding a common denominator for such partial findings by linguists, psychologists, etc. remains unsolved.

J. H. Greenberg, the cosmopolitan par excellence within this group, contributes an exemplary review of assertions made on connecting linguistic with nonlinguistic material (1–19). He categorizes the linguistic facts involved, separating rather unexpectedly structure from phonology (16) and placing the meaning of morpheme, morpheme class, and construction within the purview of the linguist; itemizes the phenomena with which a linguist may seek to make a connection (ranging from facts of sense to facts of group behavior); and asks himself what the nature of the connection is in each instance (causal,

predictable, statistically probable?). In taking up inferences from phonology, Greenberg carefully balances the obvious notion of the special rigor peculiar to this level by the less commonly held view that it is the most autonomous and self-contained of all (which may prompt some readers to ask themselves whether it is an ideal starting point for content analysis). The most original section of the paper is Inferences from Semantics (7–16); the special labels for different kinds of meaning are traceable in large part to Bloomfield and Nida. A good deal of overlapping might have been avoided in the tabulation of this system (7) by graphically subordinating No. 8 (sentential meaning) to No. 7 (complex meaning unit) and by subsuming sememe, episememe, and macrosememe (Nos. 1–3) under elementary meaning unit (No. 6).

Greenberg's conclusion is a model of circumspection and understatement:

> The conditions of valid inference . . . allow no more than a better than chance predictability from certain semantic facts to certain particular judgments of similar and differential reactions to situations. Such scattered beliefs and behavior differentials can hardly be expected to add up to anything as coherent as a world view. . . . Language only gives us the meanings of elementary units together with the rules of construction for making sentences from them. . . . What we do find in languages are particular orderings in certain areas where the data themselves demand such systematization in order to be dealt with by the speakers (. . . kinship systems, numeral systems, color terms, and directional-spatial terms).

As a result of this refined point-by-point analysis Whorf's contention that the semantic system of a language reflects some over-all world view of a metaphysical nature is rejected not in its entirety, but in favor of more modest specific correlations between linguistic and nonlinguistic culture behavior, which is exactly the conclusion implicit in the research of many European lexicologists and perfectly consonant with Hoijer's and Newman's experiences in the field. The affinity between the opinions of these two scholars and of Greenberg (including the styling and some overtones of their formulations) is astonishingly close, so that one begins to recognize the profile of a school of thought. I am tempted to call theirs the flexible or, better still, the elastic approach to linguistic analysis, which becomes an aggregate of scholarly operations of necessarily varying degrees of rigor, touching upon natural science at one end and upon the humanistic attention to the exceptional individual at the other end of a continuum; most important, the relative proximity to science does not become a mechanically applied scale of values, nor indeed a fetish. Over against this liberal approach is the concept of linguistics as a strictly behavioral discipline, from whose field of observation processes not directly subject to scientific control must be firmly removed (McQuown, Hockett).

One advantage of such a cross-section of opinions is that it helps to destroy the phantom of a monolithic, entirely congealed national school of linguistics. Even relatively well-informed outsiders have occasionally been haunted by the impression that the anthropological linguists in this country formed a veritable block within which near-perfect aggreement has been reached on all fundamentals and that their major effort was directed at present toward achieving maximum efficiency in recording the greatest possible number of multifarious language specimens. In the light of the new book, this widespread notion calls for thorough revision.

The point at which scholars seem to part company is the assignment of a specific place to the study of meaning either within or outside the confines of organized linguistics. The two extreme, mutually exclusive positions have been taken by Greenberg and by Hockett, respectively: 'There is no doubt that any language system has a structural side and a semantic side, and it is possible to state them separately' (156); 'as soon as we study semantics we are no longer

studying language but the semantic system associated with language' (152). Kroeber takes a conciliatory attitude: 'Linguists have not thrown content or meaning out of the province of their science, but they are operationally using it as little as possible, for the time being' (158). The wittiest, not to say most mordant, comment is by all odds A. Kaplan's who quotes as an unconfirmed rumor (which he takes pleasure in denying) a view unfortunately very widely held by the younger generation of descriptivists: '... that the [semantic] problem is occasioned only by the fact that we use shabby words, such as meaning, that do not have any definite content, and that if we talk only about these things that are quite definite and precise and easily handled, we shall have thereby done everything that anyone could reasonably want us to do' (157). It goes without saying that the choice of historical linguistics as one's prime interest would entail a complete reappraisal of the entire problem.[2]

For all its wealth of information, this book leaves some important questions unanswered. There is, for instance, a good deal of talk about the contrast between nineteenth-century lingists (referred to as philologists, in cavalier fashion), who evinced considerable interest in lexicology and semantics, versus twentieth-century structuralists. Is the implication that historical linguistics reached a stage of complete stagnation around 1900? The absurdity of this point need not be labored.

The second question left unsettled revolves around a change of heart which, if genuine, foreshadows a totally new attitude of a large group of linguists toward language. In fact, a senior anthropologist's remark to the effect that certain worthwhile semantic studies bearing on different degrees of consistency or coherency in the various lexicons are unlikely to attract the attention of trained linguists, as a rule scornful of such unsophisticated investigations, is parried by a younger worker's rejoinder (141) claiming that the scales have lately been tipped: 'The time has come when all of a sudden linguists are realizing that it is not low level at all, but at the highest level' (Lounsbury). It would be useful to find out what has caused such a radical and passionate reversal of a long-standing hierarchy: rational awareness of the barrenness or incompleteness of the older approach, a feeling of surfeit and tedium governing all human search for new, more stimulating fashions, or outside pressures upon, and reactions to, the performance of linguists? It is worth noting that at the other extreme of the spectrum of tastes and preferences, among practitioners of Romance word studies who have been notoriously aloof to abstractionism, a parallel dissatisfaction with their own remarkable, but somewhat monotonous, accomplishments has lately begun to manifest itself. It would seem that any linguistic technique, whatever its initial yield or the excellence of the underlying doctrine, has a saturation point, beyond which further accumulation of useful data can go on almost indefinitely, but without commensurate increase in benefit to linguistic methodology.

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[2] The anthropologist best grounded in, and most sympathetic to, the historical approach is probably Greenberg (6, 161 et passim). On the whole philology as the study of written records does not fare too well; the more condescending the references to this branch of knowledge (192–3), the less convincing.

LANGUAGE IN RELATION TO A UNIFIED THEORY OF THE STRUCTURE OF HUMAN BEHAVIOR: PART I. By Kenneth L. Pike. Glendale, California: Summer Institute of Linguistics, 1954. Pp. x + 170.

STANLEY NEWMAN

The book begins with an illustration, a party game in which people sing Under the Spreading Chestnut Tree and, in repetitions

of the stanza, replace certain of the words by gestures. The words and gestures of this game form an interconnected sequence of behavior, which can be successfully analyzed neither by linguistic nor by non-linguistic procedures alone. This observation marks the central purpose of Pike's book, that of providing a theory for analyzing the natural events in which verbal and non-verbal behavior are fused. The purpose is two-pronged in its approach. On the one hand, an over-all theory of behavior is outlined, based on the model of linguistic analysis. On the other hand, the book is primarily concerned with a theory of linguistic analysis which departs from other treatments in attempting to deal with language within the matrix of culture.

This volume, the first of a projected two-part work, is divided into seven chapters. Each chapter ends with a series of 'bibliographical comments', in which Pike discusses the backgrounds of his concepts and points out his agreements and disagreements with others. There is a bibliography and an index.

The first chapter is a brief argument for the need of a theoretical framework to encompass both the verbal and non-verbal structuring of behavior. The second chapter discusses a basic postulate of the theory: that behavior can be treated both from a physical, cross-cultural 'etic' approach (the term 'etic' being coined from 'phonetic') and from a functional, mono-cultural 'emic' approach ('emic' being coined from 'phonemic'). Here Pike begins to develop the application of a linguistic model to non-verbal behavior. The goal of the emic approach is to discover and describe the behavioral system of a particular society 'with its structural units and structural classes of such units' (8). Just as a phoneme may have conditioned variants, so any behavior unit may be composed of etic variants conditioned by preceding or following movements: thus, in playing hopscotch, a child starts the first hop from a standing position, but subsequent hops are modified and conditioned by the momentum of earlier movements. Similarly, free variants and complex variants can be identified in the emic units of non-verbal as well as verbal behavior.

The following two chapters present examples of large behavior sequences, around which further elements of the theory are introduced. In Chapter 3 a church service illustrates the structuring of behavior. The service can be analyzed into major segments (e. g., the organ prelude, hymns, prayers, the sermon, the offering), each of which is divisible into smaller segments. Etically, segment borders can be identified by a change of actors, a change of activity, or a verbal or gestural signal informing the participants that a change is about to take place. Emically, behavior is hierarchically structured: 'The church service includes the singing of a hymn, the hymn a stanza, the stanza a line (or phrase), the line a word, the word a sound, and the sound is sung by a composite of articulatory movements' (32). Central to Pike's theory is the conception of 'trimodal structuring', which defines each emic unit according to three modes of 'complex overlapping components'. The feature mode is formed of simultaneous components which contrast one emic unit with another. and thus identify the distinctive features of that unit; its internal segmentation must be analyzed primarily in terms of purpose and meaning. The distribution mode consists of relational components which mark the class membership of a unit and its potentiality for filling a spot within a larger behavior unit: e. g., a particular hymn belongs to a class of emic units which occur at designated spots in the church service, such as the pre-sermon spot or the offering spot; and the internal segmentation of a hymn is also composed of 'spot-class correlatives', such as related stanzas alternating with choruses. The manifestation mode is made up of non-simultaneous physical variants, which may fluctuate freely, vary conditionally, or differ

in their constituent elements; in this mode the internal segmentation of an emic unit is analyzed primarily in terms of the hierarchical mechanisms of its physical production.

Chapter 4 is organized around the analysis of a football game, in which the concept of 'focus' is developed. Focus may have height, varying in the degree of inclusiveness of the unit (e. g., the entire football game as against a half, a quarter, a play); it may have depth, differing in the number of levels which are simultaneously in the field of attention; and it may have breadth, differing in the number of component hierarchies included within the unit.

Chapter 5, which is boldly entitled The Behavioreme, suggests procedures for analyzing etic and emic units and attempts to define portions of the theory in more rigorous terms than the preceding chapters. An 'uttereme' is the verbal manifestation of a behavioreme. As a first approximation to its definition, the behavioreme is 'an emic unit of top-focus behavior which is related to its cultural matrix in such a way that cultural documentation may be found for its beginning, ending, and purposive elements' (57). In order to convince the reader that behavior more loosely organized than a church service or a football game can be handled within the framework of his theory, Pike presents excerpts from recordings of several family breakfast scenes and demonstrates the analysis. Crucial to the application of the theory is the definition of the 'minimum behavioreme', the necessary base from which the hierarchy of behavior is to be described. This minimal unit is identified as the smallest behavioral sequence which can be 'culturally, objectively documented as having closure and as being purposive' for its native participants (64). About midway in the chapter Pike shifts from a consideration of behavior in its interlocking verbal and non-verbal aspects to a more concentrated examination of language, and this concentration is maintained throughout the remainder of the volume.

Chapter 6, The Minimum Unit of the Feature Mode of the Behavioreme, is essentially a discussion of morphemics, approached from the point of view of Pike's theory, for the minimal verbal unit of the feature mode is the morpheme. In Chapter 7, The Minimum Unit of the Distribution Mode of the Behavioreme, the verbal unit discussed is the 'grameme', a revision of Bloomfield's taxeme and tagmeme concepts. Each of these units, the morpheme and the grameme, may be identified in their trimodal structuring. The second volume of this study will begin with a chapter on The Minimum Unit of the Manifestation Mode of the Behavioreme, the verbal unit of which will presumably be the phoneme.

As an outline of a coherent theory which attempts to extend linguistic thinking for application to the behavioral sciences, Pike's presentation is tightly organized and carefully reasoned. A logically parallel treatment characterizes the discussion of related problems: etic classificatory criteria are listed in the chapters dealing with each type of unit; the systems embracing each unit are discussed; the trimodal structuring of each unit is examined in subtle detail. Furthermore, recognizing the dangers of an overly neat and rigid theoretical formulation, Pike has been careful to provide his theory with a built-in elasticity. Indicative of this flexibility is his generous use of the term 'indeterminate': segment borders are indeterminate, for 'it is impossible to state exactly where one segment leaves off and another begins' (31); the minimum threshold of a behavioreme is indeterminate; 'we assume that the analyst is able to detect meaning and purpose . . . crudely, with a margin of indeterminacy and of error' (80); 'we may expect some indeterminacy . . . as to class membership (or memberships) of a specific morpheme (or morphemes)' (97). Pike also frankly states some of the difficulties in operating with his procedures: cautions must be observed in utilizing the evidence of native informants regarding the meaning of

even verbal forms (39), and the meaningful purpose of non-verbal units is still more difficult to elicit and identify; it 'is relatively simple . . . to arrive at morphemes as minimum lexical units, with some residue; it is much more difficult to determine when one has a minimum nonlinguistic but purposive unit' (148).

In spite of the cogency with which the theory is presented, the book will leave an empirically minded reader puzzled as to its function and utility. It is a beautifully complex and delicate piece of theoretical machinery, but where can one plug it in and what is it supposed to do? Evidently the book has a pedagogical aim, for many of the discussions are addressed to 'the student'. The final chapter contains a number of 'languagettes', artificial language data on which students may practice the analytic procedures. But certainly no student in training could be expected to master a formulation with such theoretical intricacies, so many layers of subtle indeterminacies, and such a confusing mass of terminological coinages. The student, furthermore, would receive little enlightenment from this book for applying the procedures to the raw data of alien cultures. Pike's examples of non-verbal behavior are all derived from his own culture, where he and his readers can interpret—or believe they can interpret—the meaningful emic patterns behind the raw etic phenomena. The examples merely demonstrate that once you know—or believe you know—the patterns of a culture, you can illustrate them. It would not only have been helpful to students but also profoundly interesting to anthropologists if Pike had provided examples of behavior from other cultures, illustrating step by step the procedures for determining what is to be observed, how these observations are to be transcribed for analysis, and how meaningful patterns are to be derived from this data.

If the theory is primarily aimed at specialists in the behavioral disciplines, then its orientation is curiously one-sided: it presents a linguistics-centered view of the universe, in which behavior is conceived merely as an extrapolation of linguistic structure. This is tantamount to a presumption that, except for linguistics, the behavioral sciences have nothing useful to contribute to a theory of behavior. Pike's bibliographical comments indicate that he has consulted a number of anthropological and a few sociological sources. It is unfortunate that he has ignored the literature of psychology, for it is in this direction that the most promising behavioral expansion of linguistics seems to be tending. Yet, even in the field of anthropology, Pike has apparently done his reading only to search for parallels to his own theoretical concepts—and, it must be admitted, the parallels are disappointingly few and tenuous. He seems not to have considered that anthropologists have labored mightily for several generations to develop their own procedures and theories for describing human behavior. However irrelevant their work may appear to a linguist, 'a unified theory of the structure of human behavior' could profit by a sympathetic attempt to incorporate the results of their experience into a theoretical scheme.

At the present time, however, the formulation of a theory to coordinate the behavioral sciences is scarcely a task which a single individual could be expected to perform successfully. But portions of Pike's theory might be fruitfully applied to cultural data: for example, his concept of 'spots and classes', an elaboration of the substitution-frame procedure, appears sufficiently practicable and potentially useful to merit testing in the non-verbal area of behavior. Although it may be logically unwarranted to tear chunks, in this manner, from their theoretical matrix, it is likely that contributions to any realistic theory of behavior will be made in precisely this way. If history is any guide, progress in the interdisciplinary field of behavior will take place in a piecemeal, trial-and-error fashion, by translating the concepts of one discipline into those of

another, by combining some methods of one with some theoretical constructs of another, and by patiently testing individual hypotheses in empirical contexts.

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THE SENECA LANGUAGE, A STUDY IN IROQUOIAN. By Nils M. Holmer. Upsala and Copenhagen: Upsala Canadian Studies 3, 1954. 116 pp.

TOR ULVING

When the late Father Wilhelm Schmidt in 1926 wrote his great survey of the world's languages, Die Sprachfamilien und Sprachenkreise der Erde, he noted with surprise the complete lack of modern descriptions of the languages of the important Iroquoian family (op. cit. p. 171.). Not until the last few years has there occurred a change in this unfavorable situation. D. W. Reyburn laid a safe foundation for an understanding of the intricate Cherokee verb system in his 1953–54 IJAL papers, and F. G. Lounsbury did the same for Oneida in his valuable book on Oneida verb morphology, issued in 1953 as no. 48 of Yale University Publications in Anthropology. A modern treatment to cover the entire morphological system of an Iroquoian language has, however, remained a main desideratum in this field. The publication of Professor Holmer's volume on the Seneca language must consequently be greeted as a major event in American Indian linguistics. A rather detailed review is certainly justified.

Professor Holmer is a prolific writer on Amerindian languages. Only about a year has elapsed since his book on the Ojibway language of Walpole Island appeared in the same series, and now he has this considerable volume of the Seneca language, which, like the preceding, is a fruit of field studies in the summer of 1948, this time on the Allegheny Reservation. The short interval is, however, explained by the fact that about one third of the new book is a virtual reprint, with very slight additions, of Holmer's earlier IJAL articles (15.23–44, 1949; 18.217–222, 1952; 19.281–289, 1953). The rest of the book contains new and hitherto unpublished data on the verb (34–53), the particles (53–55), and on points of syntax (56–57). There follows a small collection of texts, mainly folk-loristic in content, with morpheme-to-morpheme as well as free translation (57–64). The volume is concluded by Notes (65–71), and Index and Glossary (72–115).

A conspicuous feature of the presentation of the material is the constant reference, by means of abbreviations within parentheses, to the informants employed, listed on pp. 8–9. In addition, utterances commonly heard from different or unidentified speakers are indicated by (c). Natural and necessary as such a procedure may be in primary notes taken down in the field, it is hard to find any justification for it in the final work, at least in the form here given. Holmer's list of informants indicates only the sex of the individuals, but to be of any use it should also give the age, provenience, occupation, social standing, and degree of bilingualism (trilingualism, etc.), to provide a basis, if any, for a classification of idiolects. Much valuable space would have been saved for more important things, had the pages been rid of all those useless references.

The author states in the Introduction (11), that 'the limited stay among the Seneca made it impossible to gather anything more substantial in regard to the intricate language . . .' Nobody, to be sure, will find fault with the author for having returned from a short spell of field work with an incomplete inventory of morphological and lexical items. But what one has a right to criticise is the presumption to write and publish a book called The Seneca Language on the basis of such scarce data alone. After all, Seneca is not a hitherto unknown language on which we have no previous information, neither is it isolated with no points of contact with other languages. On the contrary, there are available excellent

texts in phonetical notation with 'literal' translation (Hewitt in BAE-R 21, 1899–1900, Curtin & Hewitt BAE-R 32, 1910–11). Further there are similar texts in the closely cognate Onondaga and Mohawk languages (BAE-R 21, and 43, 1928), as well as the fundamental treatment by Lounsbury of the essentially identical Oneida verbal system (v. supra). Holmer mentions these works in his Bibliography (116), but unfortunately he has ignored the information contained in them. One consequence of such a surprising procedure is that his book gives a much more fragmentary picture than necessary of the Seneca morphological system. But the author's own scanty material, evidently insufficient to constitute a book on the Seneca language, would no doubt have retained a certain value if only it had been subjected to a competent analysis. That such is not the case will be amply demonstrated in the course of this review. For the present I shall only mention some problems on which the author's first-hand material would have been able to throw more light than the earlier texts alone, but which are wholly neglected in the book. Such is the question of sandhi-forms, which play a considerable role in Oneida (v. Lounsbury pp. 33–34 on utterance-final versus utterance-medial forms). Another important matter very slightly touched upon is the distribution of phonemes. Types and occurrences of consonant clusters are not given at all, nor is there any systematic attempt to correlate consonant allophones with environment. Typical state ments are of the vague type 'k is often heard as English g and t as English d' (16–17), etc. Juncture and intonation are other problems totally neglected by the author.

Much more serious, however, than these sins of omission are the sins of commission, deriving from Holmer's insufficient acquaintance with his predecessors' work in Iroquoian. In the Introduction (11) we learn that the object of the book 'is to give some elementary information regarding the phonetic and grammatical structure of this language.' This statement would seem to indicate that the author has intended his book chiefly as a tool for the tyro in Iroquoian linguistics. Let it be said at once that as such it is a complete failure. To the novice in this far from easy field a reading of Holmer's book cannot but leave a feeling of utter confusion, a confusion that will only be the worse the further he advances. And yet the novice will be able to notice only a fraction of the great mass of inaccuracies that inspires the reader somewhat familiar with the subject with a feeling of regret that a book like this should have been written.

I shall now pass in rapid review the more annoying misprints and inadvertences, then comment on the often misleading terminology and unhelpful arrangement of the material, and finally devote the main attention to a selection of the misinterpretations and incorrect analyses of forms that abound in the book.

Only few misprints have been noted. What should be section 8:5 (47) is wrongly numbered 10:5, and the reference to sections 10:1–10:3 (42, bottom) should be to 8:1–8:3. The glossary contains some cross-references to wrong or nonexistent entries, but since they cause no great harm I shall not take up space with them. Inadvertences of a more annoying kind are the transposition of 'former' and 'latter' just at the beginning of the section of noun classification (19), resulting in the unexpected statement that nouns not preceded by a classificatory prefix fall into different classes. This blunder, present already in the IJAL paper, could well have been removed in the book. The section on relationship words (21), in itself a most complicated subject and in Holmer's treatment a perfect tangle, is not made easier by the inadvertent omission of a literal translation of the form teyakyatẽnũte? *my brother*. On p. 25 kukhwa is said to mean *their food*, it means *her food*.

Holmer's most objectionable terminological coinages refer to the genders (20).

Different authors have proposed several names for the three singular genders in Iroquoian. To mention a few, Hewitt used masculine, zoic, and anthropic, Lounsbury masculine, feminine-zoic (FZ), and feminine-indefinite (FI) respectively. Holmer has chosen the terms masculine, non-masculine, and common (or feminine) gender. Especially the last is unhappy, since 'common gender', it need hardly be said, is the accepted grammatical term used to refer to nouns which have either masculine or feminine concord. The Seneca gender in question comprises women in polite reference and (to a less degree in nouns, but commonly in the pronominal prefixes of the verb) somebody, a person, people. Lounsbury's term FI is no doubt the best name for this category. Preference must also be given to Lounsbury's term FZ over Holmer's non-masculine, which says nothing about the fact that many animals also belong here. And the 'common gender' is of course just as 'non-masculine'.

Another term apt to evoke wrong ideas is 'compound conjugation' (31, 41) for verb forms where the pronominal prefixes designate combinations of subject and object. 'Compound' inevitably evokes the idea of stem composition. Now this is a technique which is also present in Seneca Holmer says himself in section 12:3 (56), evidently forgetting his own use some pages back of the term 'compound', that 'verbs may be joined together, forming compounds.' This statement is found in the section called Points of Syntax, which reveals an unusual conception of the scope of this term. Still more surprising is it to encounter noun incorporation in this section on syntax. True, we have Swadesh's Nootka internal syntax, but there it is at least qualified as 'internal.' Holmer's term 'attributive suf fixes' (28) for what are really adjectival verb roots conceals the fundamental fact that these elements are verbal.

Misuses such as these are perhaps the fruit of carelessness in the choice of words, but there are other terms which testify to a complete misunderstanding of the function of the elements in question. Such is the use of 'tense' (35–37) both for the primary aspectual categories of the verb and for the tenses formed from these by means of affixes, a most unhappy mix-up which makes the introductory section on the verb utterly confusing and distorts the whole treatment of the verb. Another totally misleading term is 'potential mode' (38, 57) for what Lounsbury calls 'indefinite tense'. Holmer thinks (and by forced translations tries to make us think) that this form 'fundamentally renders English *can, could*' (38). His own examples of its use suffice to refute such an assumption. Lounsbury uses the term 'distributive' for a class of suffixes with plural or distributive meaning. Holmer adopts it for his 'prefix te- (ta-, t-, etc.)' (43), which on closer inspection turns out to be a mix-up of the 'dualic' and 'cislocative' prefixes. This confusion of the two t-prefixes pervades the whole book and is another main blemish of the description of the verb The term 'distributive' does not help clear up the tangle. Neither does the statement (48) that this protean prefix is 'reduplicated' in such a form as tẽtke? *I will come back*. The truth of course is that here the dualic and cislocative prefixes happen to occur together, separated by the future prefix -ẽ-. The term 'adjective infix' (94) for the element -ney- in such a form as haneyes *tall man* (30), testifies to an incredible misconception of the form, which consists of the verb -es *be long*, with incorporated noun stem -ney- *stature*; the whole = *his stature is tall*. (Cf. sha?tetineyes *thou and I are of equal stature*.) (All quotations not from Holmer's book are from Hewitt's texts.)

The material is in many places unsatisfactorily arranged. An outstanding example is the section on relationship words at the very beginning of the morphological section (20–21). These terms are with few exceptions verbal, and impossible to analyse before the prefix system of the verb is known,

together with the function of the dualic prefix te- and the reciprocal -atat-. To the beginner, who knows nothing of this, most of the examples given in this section will remain a mystery. But also the ordinary nouns would be more readily grasped if the nominal prefix system had been given before the long lists of examples and not afterwards. As for the prefix system itself, it will no doubt appear much more arbitrary than necessary, in the absence of any more clarifying remark than that the classification depends on the gender and 'primitive initial' of the nouns. Barbeau's Classification of Iroquoian radicals is mentioned in Holmer's bibliography, but it has had no beneficient influence on his treatment of the subject, which leaves the reader completely in the dark. The utilization of the glossary is considerably hampered by the method (or rather lack of it) of entering stems generally appearing with the prefix u- under the prefix vowel. But only sporadically! The author defends his method in Note 1, saying that 'in many nominal stems the prefix vowel -(u)- has been given for the sole reason that forms without it were never recorded'. But surely very few nominal stems were recorded without a prefix or other, why then choose this one for a haphazard use as entry vowel?

Seneca, and the Iroquoian languages in general, must no doubt be considered as difficult, even compared with many other Amerindian tongues. This difficulty is chiefly a result of their complex morphophonemics, seen e.g. in the high degree of fusion of morphemes, especially in the prefix complex of the verb, and the sometimes considerably divergent shape of allomorphs in different environments. On the other hand, many unrelated morphemes are easily confused on account of a deceptive similarity. The author admits himself (11) that Seneca is 'intricate'. It is indeed a pity that he did not realize the whole depth of this intricacy before writing the present book, for then he would possibly have realized his own insufficient equipment for the task, and the reviewer would have been spared the unpleasant duty of writing a wholly negative review. This may seem a severe verdict, but a selection from the overwhelming mass of evidence will show that I am not unjustifiably harsh.

Diverging allomorphs have played the author some nasty tricks. Thus a prefix s-, (sa-) (Lounsbury's iterative) is correctly recognized as meaning *back* (*home*) or *again* (47). As examples are given s-kahtēti? *I go back home*, ē-s-kahtēti? *I am going home*, etc. But on p. 36, talking about the future tense, Holmer states that this tense is 'expressed by the syllable ē- or ēci- before the present form.' (Holmer's 'present form', by the way, is a mix-up of the serial and punctual aspects.) The existence of a future prefix ēci- will come as a surprise to all students in this field. And of course there is no such thing. The element -ci- is the same iterative morpheme s- in allomorph for occurrence with certain 2 pers. pron. prefixes. Cf. Holmer's examples (I cut them up into morphemes to simplify the analysis) ē-ci-sny-ahtēti? *you two are going* and ē-ci-sw-ahtēti? *you all are going* with ē-s-kahtēti? above. But the future prefix ēci- is not the only contribution to the stock of Senecan ghost-morphemes occasioned by this troublesome s-prefix. There is also, according to the author (37), an imperative suffix (sic!) ci-, seen e.g. in ci-tw-ahtēti? *let us go*. Again the same iterative morpheme in the same allomorph! Both these blunders are, as will be seen, caused by the change of s into c before i in certain cases, a change nowhere mentioned by Holmer and evidently unknown to him, as well as the identical change before y. An instance of misinterpretation due to ignorance of the latter change is seen in the section on the 'postposition'-tih (27), where the first example is tyunyatih *back of the flat*. Holmer then continues: "With the form in s- . . ., -tih means *beyond:* skanyutaetih *over* (*beyond*) *the lake* . . ." Evidently he has not realized

that tyunyatih also contains the prefix s-, which joined to the initial y- of the noun yunya *isthmus* produces c-, by Holmer here written ty-. The author's failure to recognize this change makes a detail in the section on numerals hard to grasp for the novice, who is told (well hidden in a note) that *one* is sometimes expressed by a prefixed s- (the equally important suffixed -t is not mentioned!), and then meets the form tyushæt *one year*, without explanation of the initial ty- (thus < s- + -yushæt). (By the way, Holmer seems to think that -(u)shæt is the stem of this word, for in this form it is entered in the glossary (109). But a few pages back (106) there is an entry (u)hshæ- *winter*. The identity of the two stems has escaped him.) Talking about s- prefixes, we may as well mention the very suspicious-looking prefix shūsa- (48), said to be a clear compound (!) of s(a)- and hūsa-, which latter is said to mean *into*. Shūsa-, we are told, means *in again* or *back into*. There is no fragment of truth in all this. Hūsa- means *back there*, not *into*; there can be no compound of sa- and hūsa-, which would contain the iterative prefix twice, a matter of impossibility. The solitary example of the form: wae shūsayū? *he came (in) just now* is certainly to be read waeshū sayū?.

Cases of such incorrectly placed cuts, with resultant ghost-words, are to be found in not a few places in the book. An amusing example is the glossary entry nūtye? *toward* (98), exemplified by hu?ke(?)nūtye? *I am going toward*. The 'word' nūtye? is made up of the perfective aspect suffix -nū of the verb stem -e- *go*, plus the progressive suffix -tye! (Incredibly enough, this common suffix is nowhere mentioned in the book.) Another example is nis satyeeha(?) *(what) do you do?* (79, glossary s.v. -(a)tyee-). Holmer evidently thinks that nis is the personal pronoun *you*. But the real form is ni-s-atyee-ha?, with the relative prefix ni-. This form -atyeeha? gives us occasion to mention the astonishing fact that the aspectual suffix -ha?, present in this form, is unknown to the author. He only recognizes the homonymous purposive suffix, but even that element is sometimes wrongly analysed as belonging to the verb stem. The consequence of this confusion is that the glossary contains not a few entries of verbs ending in -ha, which in some cases turns out to be the aspect suffix, in others the purposive. Examples of the former are -(a)staha- *cry*, -(a)tekha *burn*, -etha- *holler*, of the latter -(a)tyu?tatha *work*, -(a)tuwetha *hunt*.

I shall terminate this already too long review by some random gleanings from the book, as a further illustration, if such be needed, of the general standard. The author's statement is given first, then the comment.

P. 18: -nyu- *kill* (Mohawk -rio-, Oneida -liu-). The expected form (with regular loss of -l/r-) is also found: ē-hs-iyo? *thou wilt kill*, o?-sk-iyo? *thou hast killed me*. P. 24 (and Note 32): The plural suffix -s in kahiyus *good creeks*, etc. 'is either some kind of abbreviation of -shū? or due to English influence (?)'. Neither. Native plural suffix (= Oneida -?se?), added to certain perfective stems with incorporated noun root. P. 26–27: The construction cite?u uhū?sa means *bird, its egg*, i.e. *bird's egg*. Not at all. There is no possessive *its*, just a juxtaposition of the two nouns. P. 29: The concrete meaning of the suffix -(h)kwa is altogether paled. Not at all. Its instrumental force is very clear, not least in Holmer's own examples. But the suffix -kwaa? in unūkwaa? *milk*, etc. does not belong here. P. 29: -ya?tūni- *paint, write*. There is no such verb. Holmer has wrongly abstracted it from the form k-ya?tū-nyū? *I write*, which contains the distributive suffix -nyū?. The stem is -(h)ya?tū-, as shown by all derivatives, and by Oneida -hyatū-, and Holmer's etymology: -ya?t- *body* (for this is the primary meaning, not *picture*!), plus -ūni- *make* cannot be correct. P. 30: Nouns qualified by terms referring to color take a prefix ni- and a suffix -u?tē or -?tē (called 'color suffix' in the glossary). The morpheme -u?tē is a verb meaning *be of the kind of* . . . , and is not confined to color

expressions, nor to the position after nouns. Cf. nehuh n-ẽ-y-u?tẽ-ũk *thus it will continue to be*, he ni-y-u?tẽ *such is the kind of it*. P. 32: The form sẽniyũ *three* for the usual sẽh is found with certain nouns. This is not a variant form. The element -ũ- is a verb meaning *be of the number, amount of*, and ni- is the relative prefix, thus sẽ ni-y-ũ *three is the number of it*. Cf. kei n-ẽ-y-ũ *the·e will be four*, etc. P. 37: The suffixes -k, -ak, -tak express past tense. Not at all. They express continuous action, often in the future, as e.g. ẽ-hs-i?tyu-tak *thou wilt continue to dwell*, ẽ-hati-nũke-k *they will live habitually*. P. 38: The potential mode is characterized by a prefix a-. Not always. In combination with other pre-pronominal prefixes it is often ũ, as ũsa-, ũta-, nũta-, etc. P. 47: The prefix hũta- expresses *from:* kanũhses te-hũta-ke? *I come from the long house*, n-ũta-ke? *I am coming from* (for ne-hũta-ke?), and the negative hẽ?kanũhses tehu t-hũta-keh *no, I don't come from the long house*. This is all wrong. There is no such form as hũta-, which would be an impossible combination of translocative and cislocative prefixes. There is only thũta- (contrastive plus cislocative), and nũta- (relative plus cislocative). P. 48: tũta- expresses *out:* tũta-kyakẽt *I come out*. A very unfortunate example, since it is the verb stem -yakẽt that means *come out!* Tũta- means *back here*.

P. 49: The suffix -ta in yæhkwihsakta? *a watch* is causative, and the form means people - make - it - search - the - hour. Hardly. The suffix is instrumental here of course. P. 49: The suffix -tha (-ẽtha) has a causative function. Yes, but -ha is the serial aspect suffix; the causative element is *-t-*. And as for -ẽtha in ka-kwanẽtha? *magnifying glass*, the -ẽ- belongs to the stem. P. 50: Meaning and function of the suffix -ũh is perhaps temporal. No, it is the perfect aspect suffix. P. 53: To the class of local, temporal, and modal particles belongs the form ha?teka- *enough, one must*. Example nehu ha?tekayei *it is enough*, ha?tekakun ẽkatyũ?tatha? *I must go to work*. This is indeed a staggering statement. A form made up of three pre-pronominal prefixes plus the 3 sg FZ prefix ka- is here interpreted as a particle and ascribed meanings which are not at all inherent in this sequence (which of course has no meaning at all by itself), but which arise only in conjunction with the verbal stems to which the complex is prefixed. But there is more to it still. In the glossary there are two entries ha?teka-, the first said to mean *half, part*, e.g. in ha?-tekakẽhe *midsummer*, the other *enough, must*, with the concluding illuminating statement that 'both words [!] represent *one* semanteme, cf. English moot, meet, must, and related forms.' But the stupefied reader has more to face. For below ha?teka- *half, part*, he finds the example tetyutiha(?)-te?-shũ *creeks some* [read *come*] *together*. First, where is the meaning *half*, or *part*? Secondly, the segment -hate- appearing in the middle of this form has nothing whatever to do with the initial sequence ha?teka-. It is the incorporated noun stem -h- *river* plus the verb te- . . . -ate?- *meet, come together*, the whole form analysing into te-t-yuti-h-ate?-shũ? *where the rivers meet*. By the way, the presence of the incorporated -h- *river* has escaped Holmer also in the exactly parallel form tetyutihakhashũ? *where rivers part*, from which he extracts a verb stem -hakha- *part*!

P. 67 (Note 22): The form tyekhũnyatha? *kitchen* is literally *where people prepare for eating*. Not exactly, but *where people prepare food*. The mistake derives from Holmer's belief that -khũni means *eat* (91). It means *prepare food*, and it is not composed of -k- *eat* plus -ũni *make*, as Holmer seems to imply, but of -khw(a) *food* plus -ũni. P. 68: The prefix character of the stem-initial vowel is often quite apparent. Thus, for instance, the verbal stem -a-ti- *sit down* appears also in the related forms -i?-ti- e.g. ki?tyũ? *I sit*. A most unhappy choice of example, since there is no stem -a-ti- at all, but only -at-yẽ / -at-i, composed of the reflexive prefix at- plus the stem -yẽ *put*

down. And -i?tyũ- is from -i?terũ-. P. 70: Causative -ha- is also found in Siouan. That may be correct, but it is not found in Seneca, since the causative morpheme is here -t-, while -ha is the aspectual suffix. P. 75: -nutẽ- *sing*. Another ghost-word created by faulty division of forms. *Sing* is -at-ẽn-ut-. P. 80: -(a)ya?k-, -(a)yak- *cut*, esp. *pick berries:* kaya?kũ? *I cut it*, cayakhah *go berrying*, ẽswayakhe? *are you going to pick berries?* . . . the original -ya?kha- is normally reduced to -yakha-. Anybody but the unsuspicious author would certainly have halted at such a strange case of semantic specialization as *pick berries* from *cut*! The truth is that Holmer has confused two verbs that have nothing whatever to do with each other. One is the verb stem -ya?k- *cut*, the other -aya-k- *pick berries*, which is made up of the incorporated noun stem -aya- *berries* and the verb stem -k *pick, gather*. And the final -ha is of course the purposive. P. 86: -hsyũni- *make*. Holmer makes no reference to the simple -ũni- of the same meaning, and loses the opportunity to comment on incorporated 'empty noun stems', such as -hsy- in this case. Another case in point is -sku- *fall into the water* (101), where a comparison with other forms would have shown the element -sk- (rather than -?sk-) to be another such empty stem, while the verb stem is -u-. P. 87: -(i)skewa- *sweep*. The real form is -iskewak, with final -k, in spite of kiskewas *I sweep*, for Seneca in most cases simplifies final -ks to -s. Holmer himself has the form yeskewakta? *broom*, with instrumental -t-.

P. 88: -iwa- *word*. The semantic field of this stem is much wider than can be conceived from the translation *word*. In many cases it is rather *matter*. A recognition of this fact would perhaps have enabled Holmer to analyze the form kayũnih *that is why* (90), which now beats him. This is ka-i-ũni *it-matter-makes*, with the incorporated -iw- regularly shortened to -i- before ũ (cf. -kh-ũni- *food-prepare* < -khw-ũni, tyiskũni *mush-prepare* < tyiskw-ũni, etc.) P. 89: -k *eat*. Holmer gives no examples of the most interesting forms of this verb, with the serial aspect suffix -s. The usual Seneca simplification of final cluster -ks to -s (see above) has brought about forms where the verb stem is zero, as e.g. ikes *I eat habitually* < i-ke-k-s, watis *they (FZ) eat* < wati-k-s, etc. Holmer has some entries in the glossary containing such forms, not analysed and evidently not understood, such as kacitas (82) *chicken hawk* < ka-cita-k-s *it eats birds*, and ũkwiyas *cannibal* (107) < ũkwe i-ha-k-s *people he eats*. P. 104: tekiya?kũ- *beaver*. Hewitt translates *buffalo*, and since there is another word for *beaver*, nũkanya?kũ, this seems more probable. P. 105: -?tyũ- *live:* te?e?tyũ? *she is not living*. This is of course the same verb as -(i)?tyũ- on p. 88, there translated *sit*. Holmer seems unaware of the fact that the FI pronominal prefix -(y)e- supplants the initial i- of i-stems. P. 106: -(u)ẽtũ- *road comes down*: tyuẽtũ? *where the road comes down* (place name). A typical informant's translation. There is of course no element meaning either *road* or *come down* in this form. The stem is -ẽtũ- *front*, cf. uẽtũkwah *front side*. P. 111: -we(e)- *far away, ago*, etc.: kaweh niyuwe? *is it far?*, wee? ni hẽke? *I have got far to go* [incidentally, ni interpreted as *I*. It is the relative prefix], keiskai niyushake nuwee? *fourteen years ago*. Two (or three?) different morphemes are here confused again. The -we- of niyuwe? (from -le- through the usual disappearance of -l- and rise of -w- in the hiatus after u; cf. -atuwet- *hunt* < -atulat-, etc.) is a noun stem meaning *distance* (in space or time), usually, as in Holmer's example, followed by the verb stem -?- *be of the size of*. So the first example is analysed kaweh ni-yu-we-? *what is the size of the distance*. The element wee in the second example is a particle meaning *far*. These two morphemes may occur together, as in wee niyuwe? *far is the distance*. The form nuwee? is probably something else again (meaning *now*? Cf. Oneida nũwa *this time*). P. 113: -ya?tes- *black snake:* skaya?-tes. We get no information on the initial

s-, common in animal names in the meaning *one having . . . , characterized by . . .* , thus here *one having a long body*. It is probable that many of the animal names beginning in ty- and not analysed by Holmer (105) could be interpreted, remembering that ty- may be from s + y-. P. 113: -ya?tihsa- *look for a woman*: keya?tihsas *I am looking for a woman*. Another incredible blunder. The entry means of course *look for a body, somebody*, and it is the prefix ke- *I . . . her* that gives the meaning *woman* in Holmer's example! And the verb form is -ihsak, with final -k (-ks > -s again). P. 115: -yuta-, -yute-, in time expressions: tu ni yuta *how many days?*. y- is pronominal prefix to the verb stem -uta *day (and night) passes*. Cf. sẽ na?uta? *three nights passed*, kei nẽyuta? *four days will pass*.

It is a common practice to round off even very condemning reviews with a few lines to the effect that in spite of everything the criticised work is not so bad after all. I deplore that I cannot conform to that practice in the present case. The reader of this review will no doubt agree that the final verdict can be no other than this: an unsatisfactorily organised presentation of highly fragmentary, largely misinterpreted material. The Seneca language still awaits a competent description.

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